

3dcreative

Issue 072 August 2011

**David Moratilla, Gun Phil Park,
Jacinto Monteiro & more!**

Gallery - 10 of the best images
from around the world!

Sam Yang

3dcreative interview this
fantastic artist

**"Mercedes-Benz
300SL (1955)"**

Project Overview by Martin Forgáč

THE CHARACTER ISSUE

Anatomy, cartoon animals, low poly
hunters plus much more crammed
into this month's 3dcreative magazine.

Cartoon Animals

Yaroslav Primachenko creates a cool looking emu character in the second chapter of this tutorial series.

Modeling Features of the Human Anatomy

Jose Lazaro, Gavin Goulden, Lino Masciulli & Anto Juricic continue our Human Anatomy tutorial series by showing us how to create feet.

NEW!!! Vue Environment Creation

In this issue **Alex Popescu** starts off our new four part tutorial series by creating **The Bay** in Vue.



Cover image by Sam Yang



EDITORIAL

I can't believe that we are in August already. Some of you may be clinging on to the last days of Summer, or you may have given in to the fact that soon the days will be shorter and colder. But while the world around us changes there is one consistent thing you can rely on, the quality of 3DCreative magazine.

I will kick things off this month by talking about the amazingly talented Blizzard artist **Sam Yang**. Sam was brought to my attention recently when looking through some of the CG forums. He has created a great portfolio of work in a short time and has managed to land himself one of the most desirable jobs in the CG industry. Sam tells us how he has achieved so much at such a young age, and shares some really cool work with us.

On the subject of cool work we will move on to talk about this month's Making Of. In the world of CG cars are a common subject. Because of this each new car image we see needs to be a little different or executed particularly well. This month's making of fits this specification perfectly. **Martin Forgáč** shows us in this issue how he recreated his cool version of a Mercedes-Benz 300SL (1955) and talks about the effects he used in post-production to make his image unique.

Last month we wrapped up our classical sculpture series by Rafael Ghencev, and in this issue we will move on to something very different. 3DCreative has never before published articles about Vue but in the August issue we will be breaking the mould. Vue is a fantastic piece of software that is becoming more and more popular and widely used in the film and games industry. Vue is fantastic for creating environments and backdrops and in this series **Alex Popescu** will be showing us exactly how to do this.

I hope you all enjoyed the first chapter of the Cartoon Animals series. This is a fun series with some really helpful tips in it. The series is continued in this issue by **Yaroslav Primachenko** who shows us how to exaggerate features to turn a normal animal into a cool cartoon.

Tamara Bakhlycheva wraps up her low Poly Characters series in this issue by showing us how to do some final tweaks to your image and how to present it in the numerous CG forums. This has been a great series and a lot of fun, but next month we will be starting a cool new series about creating futuristic vehicles.



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"MERCEDES-BENZ 300SL (1955)"

Project Overview by Martin Forgáč



"CROSS OF IRON"

Digital Art Masters: Volume 5 - Free Chapter



MODELING HUMAN ANATOMY

Chapter 5: Feet



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EDITOR	LAYOUT	CONTENT	PROOFING
Simon Morse	Layla Khani	Simon Morse	Jo Hargreaves
LEAD DESIGNER			MARKETING
Chris Perrins	Matt Lewis	Tom Greenway	Amy Bayliss
		Richard Tilbury	
		Chris Perrins	

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I hope you have been enjoying the Modeling Features of the Anatomy series. In this issue our artists will walk us through how to model a foot. There are no changes to the line-up so or instructors as always are **Jose Lazaro** in 3DS Max, **Gavin Goulden** in Maya, **Lino Masciulli** in Cinema 4D and **Anto Juricic Toni** in Modo.

I am sure you will agree with me that there is plenty to get your teeth stuck in to there, and if you are struggling for inspiration check out our gallery which is featuring images by **David Moratilla**, **Maarten Verhoeven**, **Gun Phil Park** and many more.

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Get the most out of your Magazine!

If you're having problems viewing the double-page spreads that we feature in this magazine, follow this handy little guide on how to set up your PDF reader!

SAM YANG



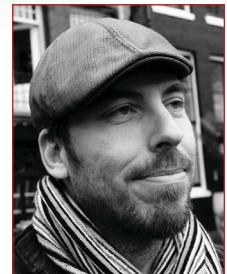

CONTRIBUTING ARTISTS

Every month artists from around the world contribute to 3DCreative, and you can find out a little more about them right here! If you'd like to get involved in 3DCreative magazine, please contact: simon@3dtotal.com



JOSE LAZARO

Jose Lazaro is a freelance character artist based in the UK. After working in big titles like CastleVania: Lords of Shadow and Dead to Rights he has decided to change his career creating characters for indie games with more artistic and technical control, developing the pipeline and the final result. Currently he is a mentor for one of the best CG schools.



<http://josemlazaro.com/blog/>
ballobello@gmail.com

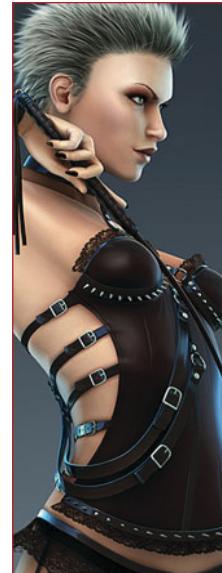


GAVIN GOULDEN

Gavin Goulden is a character artist for Irrational Games working on Bioshock Infinite. With 6 years

games industry experience, he has contributed character and environment art assets to multiple titles including Dead Rising 2, The Bigs 2, Damnation and FEAR 2.

<http://www.gavimage.com/>
gavin@gavimage.com



LINO MASIULLI

Lino Masciulli worked as an art director in the advertising field until 2006. In recent years he moved into the entertainment industry by working as the senior modeler for Rainbow CGI in Rome participating in the production of "Winx and the Secret of the Lost Kingdom", "Winx Club 3D Magic Adventure" and other movies. He currently works for the same company on other animated feature films.



www.linomasciulli.com | cardinal_@hotmail.it

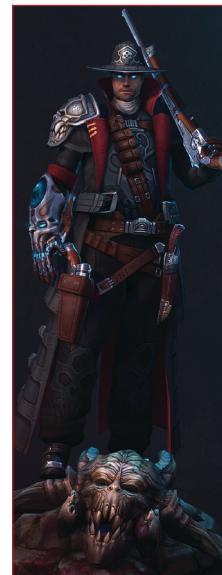


ANTO JURICIC

Anto Juricic Toni is a character artist and he currently lives in Bosnia and Herzegovina, where he works at Primetime

Studio as a modeler and texture artist on animated features. Along with his passion for creating CG characters he also enjoys teaching others and sharing his techniques through many online tutorials and publications.

<http://anto-toni.cgsociety.org/gallery/>
monty.band@gmail.com



TAMARA BAKHLYCHEVA

Tamara Bakhlycheva was born in Russia. She graduated traditional art-school and art-college and now resides in Moscow, working as freelancer 3d character-artist and dreaming about working for Blizzard. Tamara loves to play video games and has done since the age of 5. Tamara has been making art for video games since 2005.



<http://first-keeper.livejournal.com/>
tamara.salatova@gmail.com



SAM YANG

Sam Yang works at Blizzard Entertainment and is currently working on StarCraft II. His passion for digital art started as a hobby but he was later able to develop it into his dream job. He enjoys creating different types of 3D characters and creatures. His inspiration comes from watching cinematics from the Final Fantasy series and playing Diablo II."

<http://www.cg-sammu.net/>
syang.cg@hotmail.com

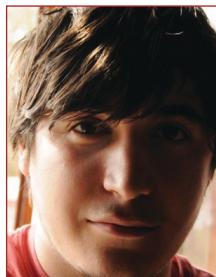


MARTIN FORGÁČ

Martin Forgac comes from Slovakia and currently lives and works in Bratislava. He started to learn computer graphics during his studies at the University of Mass media communication. Between 2007 and 2008 he worked as a 3D artist for Alien Studio and he currently works as a freelance artist.



<http://www.rebro-art.com/>
forgacm@stonline.sk

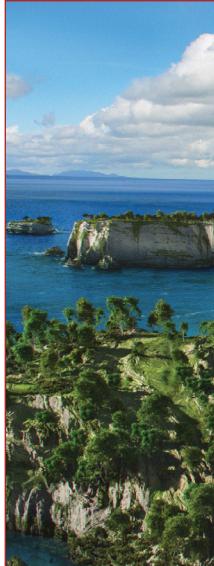


ALEX POPESCU

Alex Popescu works in the visual effects industry specializing in film work. He concentrates on digital set creation, environment design and concept art. He also works on set extensions and 2D matte paintings.

At the moment he works as a Lead DMP\ Environment artist at MPC London.

<http://www.alexpopescu.net/>
alex@alexpopescu.net



WOULD YOU LIKE TO CONTRIBUTE TO 3DCREATIVE OR 2DARTIST MAGAZINE?

We are always looking for tutorial artists, gallery submissions, potential interviewees, 'making of' writers, and more. For more information, please send a link to your portfolio, or send examples, to: simon@3dtotall.com

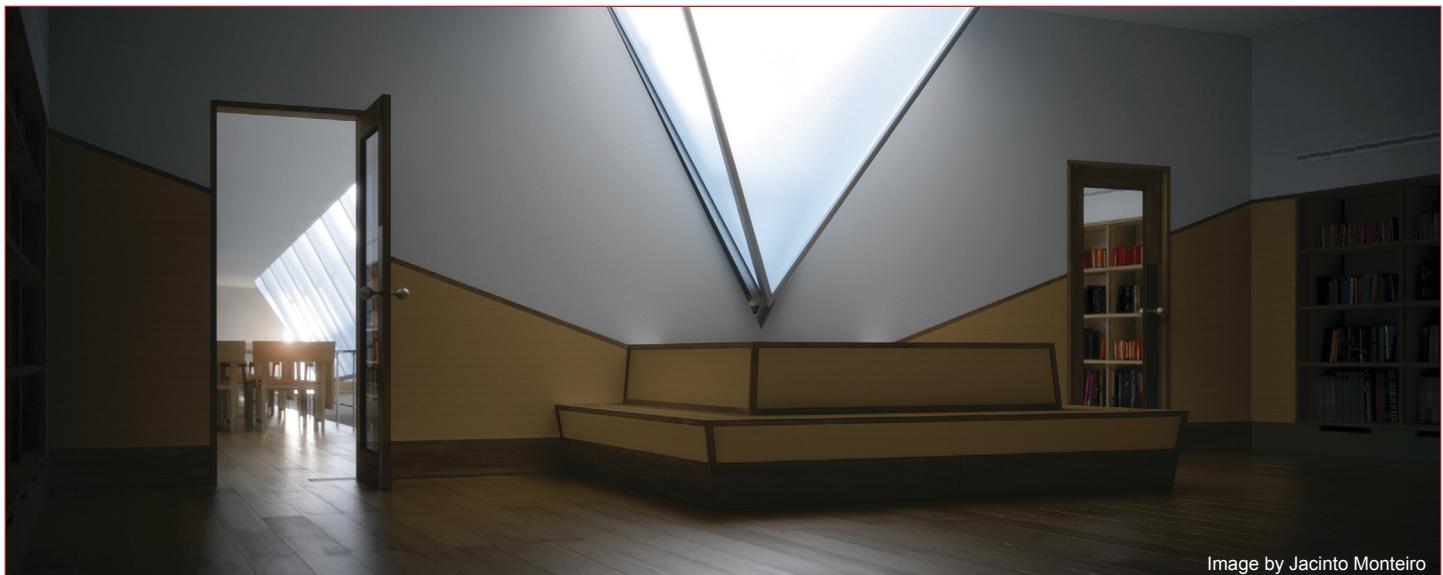


Image by Jacinto Monteiro

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"ALL THESE GOOD AND
BAD DECISIONS LED ME TO
SOME VALUABLE INDUSTRY
EXPERIENCES THAT MONEY
CAN'T BUY"

Some artists grow into the industry and others work hard for their dream jobs, but there are also artists who were born for a certain job! This is the case with Sam Yang.

From a young age he was destined for a job at Blizzard and achieved his goal at a young age. This is one talented guy!

SAMYANG

Can you tell me a bit about yourself and how you became a renowned artist?

During my high school years I loved to draw my favorite characters and all sorts of nasty creatures on paper. I decided then that I wanted to turn my "hobby" into a career. Inspired by video game cinematics, I finally decided that I needed to go to an art school to learn the fundamentals of 3D to get things started. After graduation I committed myself to polishing my skills in my free time so I didn't fall behind in the industry. Entering competitions on forums definitely helped me get closer to becoming a renowned artist – it is a great way to get more exposure, receive critique and open up freelance opportunities.

When looking at your work I can tell that you certainly don't lack ideas. From where do you extract your inspiration; is it comics, old movies, life or something out of the box?

Going back to the old-school low poly characters that we all remember to be so amazing has been my newest approach this year. When recreating Zero from *Marvel vs Capcom* (originally from the *Rockman X* series)



"AS ARTISTS, IT'S IMPORTANT THAT WE TRY TO STEP AWAY FROM WHAT'S ALREADY BEEN SEEN AND INTRODUCE THINGS THAT ARE FRESH AND UNIQUE"

I knew he would already have a great target audience. This way people can easily relate to the character which is something I think about

a lot before committing to anything. I wanted him to have a new twist, yet maintain that iconic original design that Capcom came up



with. Thinking out of the box is a good way of putting it. As artists, it's important that we try to step away from what's already been seen and introduce things that are fresh and unique. Some inspiration comes from watching my childhood favorites: *Laputa*, *Nausicaa*, and many others. As for video games, the ones that had an impact on me when I was young were *Final Fantasy VII-X*, *StarCraft*, and *Diablo II*.

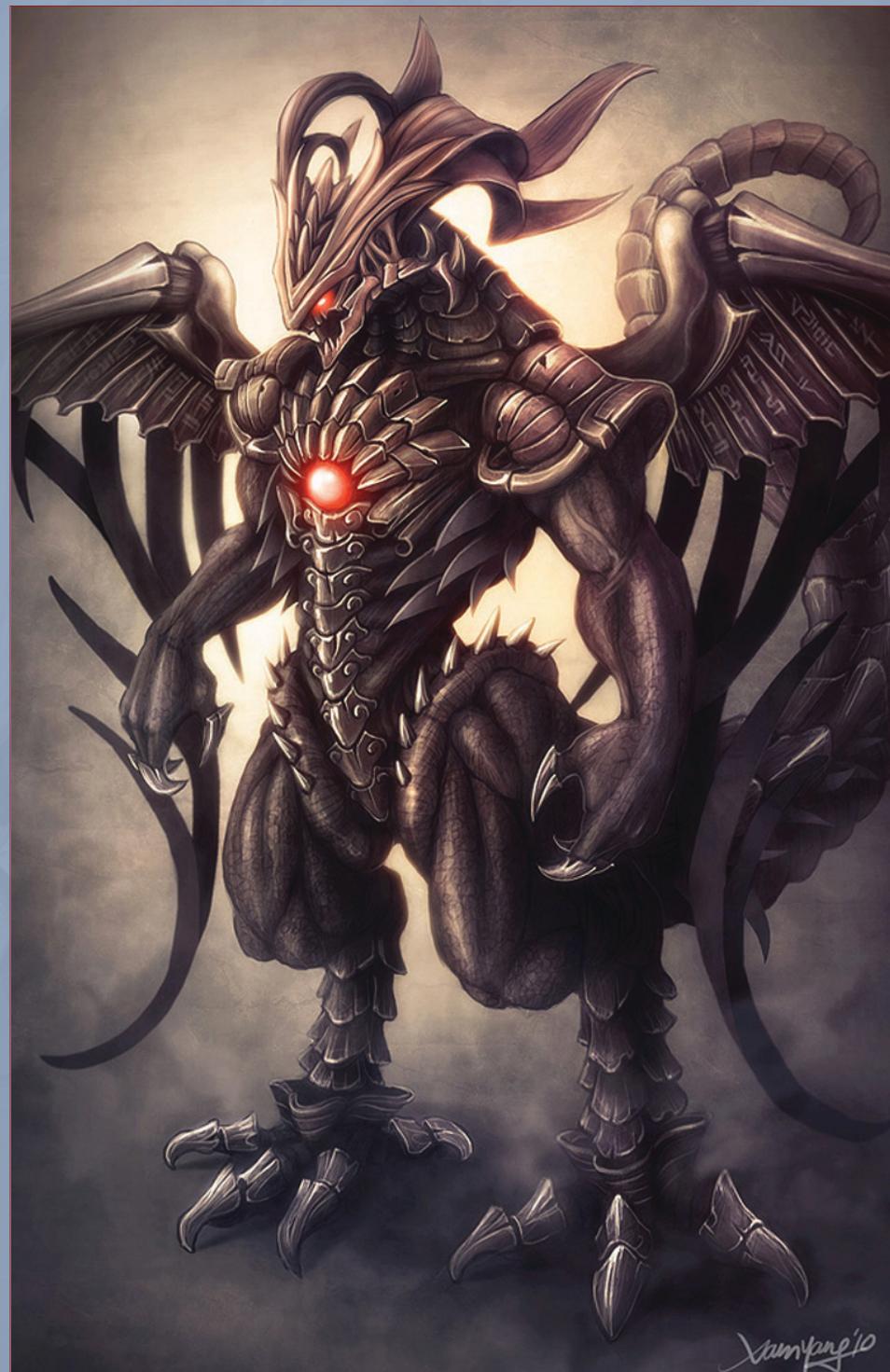
Modeling-wise, have you ever started your model from scratch, disregarding the current stage or development, due to having a new idea?

Yes, I have. Sometimes the first pass of your model gets revised and tweaked afterwards in production. Coming back to it a second time or even a third time is usually for final polish purposes on our team.

“ LEARNING HOW OTHER ARTISTS APPROACH THEIR CONTEST PIECES IS ANOTHER GREAT WAY TO IMPROVE YOUR SKILLS AS AN ARTIST.”

How have you refined your workflow after so many successful projects and competitions, and how has it evolved?

The reason I enter art competitions is not for the prizes, but because I learn something new at the end of each one. When I was a student I

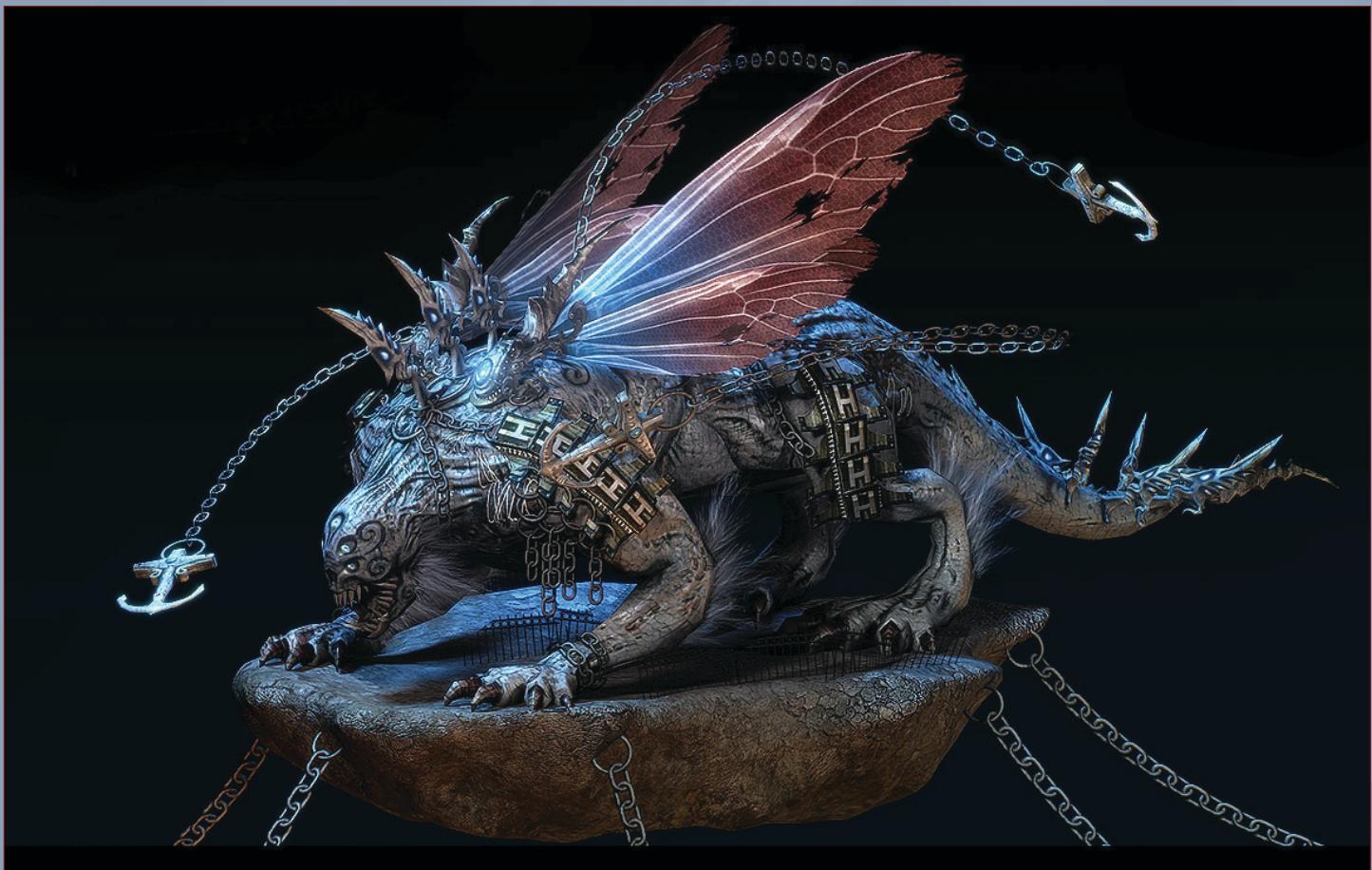


was trying to do everything in a single software package. After a lot of trial and error I started to understand how much faster and cleaner my workflow could be. Things like switching to RoadKill for UV unwraps, and rendering real-time on the Marmoset engine has saved me a ton of precious time. I work with 3ds Max, ZBrush, Roadkill, Marmoset and Photoshop. Learning how other artists approach their contest pieces is another great way of improving

your skills as an artist. Silhouettes and making sure the shapes read well at a distance is very important as well.

Have you ever wondered what it would be like if you deviated from your current style and started to make cute furry creatures that the world could fall in love with?

[Laughs] I will make something cute and furry next time I get the chance! I do enjoy watching



movies like *Ice Age* and *Finding Nemo*, so perhaps this new direction could turn out fantastic.

"I DON'T REALLY HAVE A GREAT GRASP OF TRADITION ART; I USUALLY JUST KEEP AN OPEN MIND AND LET MY IMAGINATION RUN WILD"

Because of the potential of 3D tools these days do you ever make your concepts within them, or do you usually create traditional concepts?

It's always better to keep up with what's new in the industry today. I don't really have a great grasp of tradition art, I usually just keep an open mind and let my imagination run wild. If it doesn't work out, then I slowly bring things back down to a simple level so I can adjust them. At the end of the day my job as a 3D artist is to give people an epic experience with breathtaking characters and environment art so the creation process is very important.

It seems like you are happy in your job and like intersecting with the CG community.

What do you do in your free time?

Working in the CG industry has always been fun to me. Being able to contribute to well-known games such as *StarCraft II* and make money full-time just makes it that much better! As for

my free time, taking some time off to get away from the computer is nice and important – especially in this industry where so many hours are spent behind a desk. When I do get a spare moment I like to spend some time with my family and grab some drinks and party it up with my friends.







Have you ever considered taking on a role as an educator? The reason I ask is that you present your art in a way that gives people an insight into the process you use.

"IT WAS DIFFICULT TO FIND JOBS TO BEGIN WITH, SO I ACCEPTED ANYTHING I COULD SO MY RESUME WOULD EXPAND"

I have never imagined myself as an educator before; I don't see myself as having great teaching abilities, but I guess it's nice to try everything at least once. I would love to share my knowledge, experiences and honest opinion with artists who are seeking help in this field.

Looking back to when you were younger what were your goals when you were practicing your art?

Back in the day when I was a graduate, I was taught to not worry about low hourly wages and low freelance offers when starting out in the industry. It was difficult to find jobs to begin with, so I accepted anything I could so my resume would expand more quickly. Studios only want people with experience. I've done 3D art in different fields such as aviation, architecture,



flash animation and now at a game/cinematic company. All these good and bad decisions led me to some of valuable industry experiences that money can't buy. I wanted to learn as much as I could while I was still young. Every company does things differently and has certain art styles. I believe seeing it from every perspective has definitely helped me to understand what I really want to do.

I know our readers are dying to know the sensation and feeling that you have after playing a game you worked on, or seeing a movie that has something you created in it. How does this feel?

[Laughs] I never knew how to react after watching *Smallville* Season 7 and after seeing *StarCraft II* publicly announced and released around the world! But yes, I get emotional





sometimes when I look at how far I've come: from the days when I drew a stick man on lined paper with my stubby fingers to someone who is now working in the entertainment industry. I remember I was just a fan who played *StarCraft Broodwar*, and now I've created assets for *Wings of Liberty* and *Heart of the Swarm* for Blizzard Entertainment! It's crazy!

Thanks for taking the time to do this interview with us and looking forward to those cute furry creatures that the world has never seen before!

SAM YANG

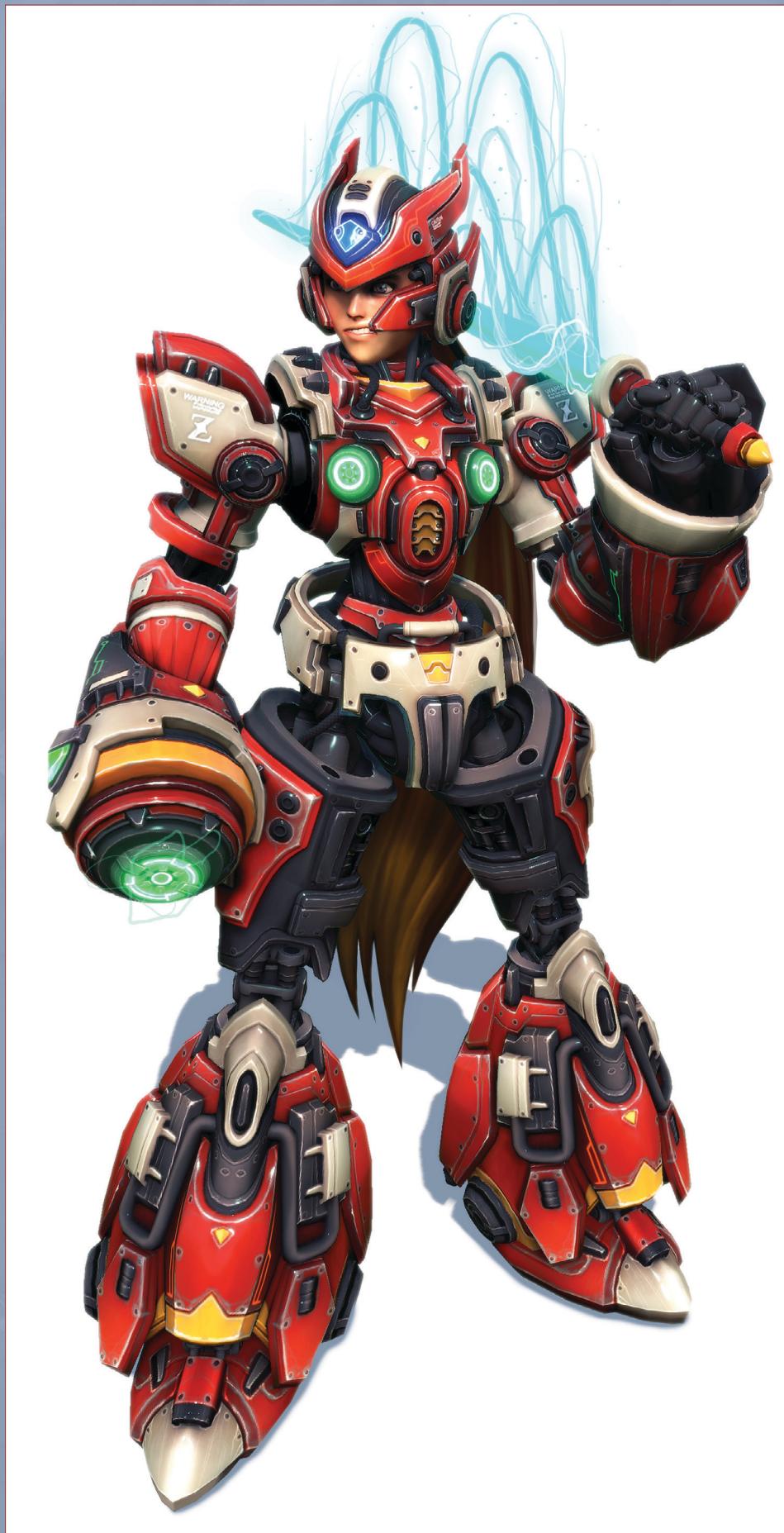
For more from this artist visit:

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Or contact them at:

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Interviewed by: Predrag Rócnearsta Šuka



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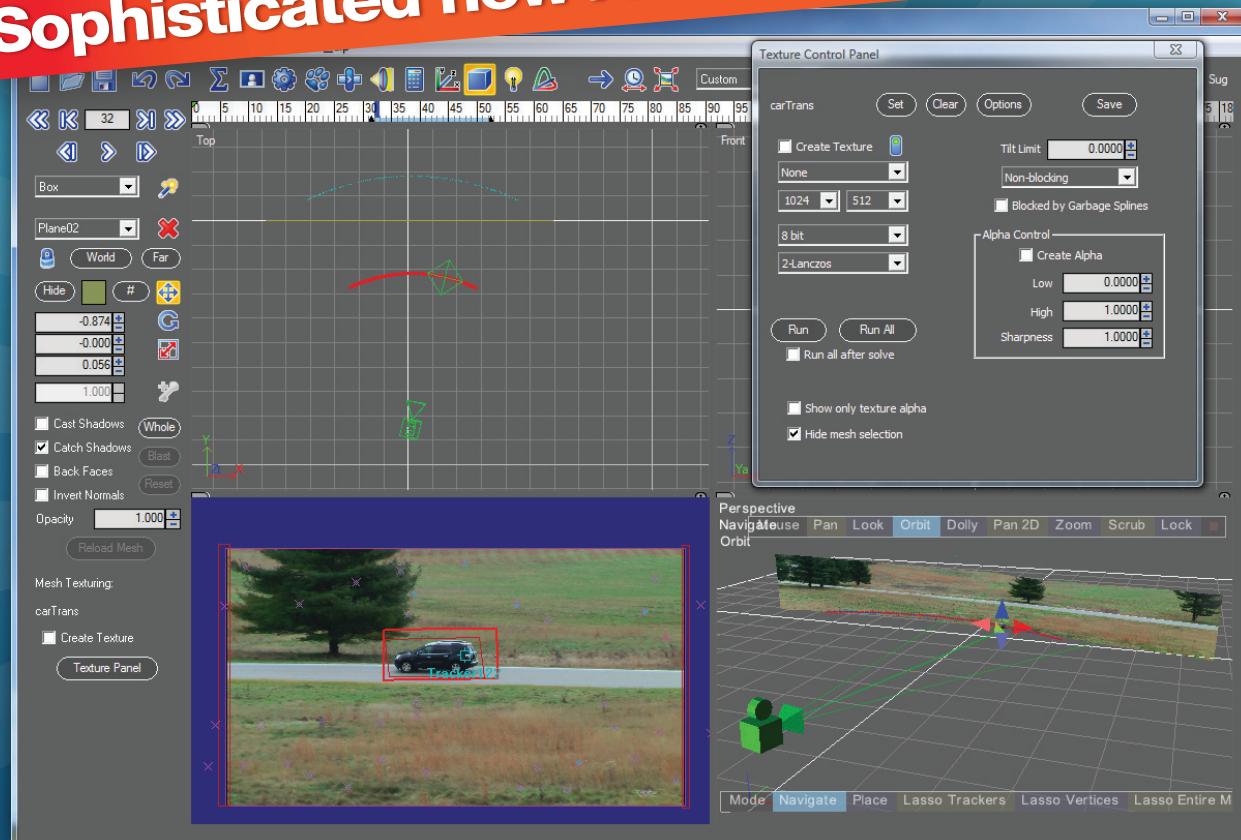
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The Gallery



This month we feature:

Maarten Verhoeven

John-Mark Gibbons

Casper Thomsen

Klimov Alexey

Livio Rajh

Wesclei Barbosa

Gun Phil Park

David Moratilla

Jacinto Monteiro

3Devotion - Claude Kongs / David Horbach

DINO BABY

John-Mark Gibbons

<http://www.johnmarkgibbons.com>

johnmarkgibbons@hotmail.com

(Above)



VILLA EXTERIOR VISUALIZATION

3Devotion - Claude Kongs / David Horbach

<http://www.3devotion.com/>

info@3devotion.com



GIANT**Wesklei Barbosa**<http://wesklei.com>wesklei@hotmail.com

(Right)

**ALL ROADS LEAD TO ROME****Livio Rajh**<http://cigians.com>lrajh@yahoo.com

(Below)



TRAILER PARK QUEEN

Maarten Verhoeven

<http://mutte.cghub.com/>

darth_mutte@yahoo.com



THE MARAUDER

Casper Thomsen

<http://3d-artist.dk>

zpanzer@gmail.com





klimovart@gmail.com

GOD OF SYNTHETIC GRAVITY

Klimov Alexey

<http://jips3d.daportfolio.com/>

klimovart@gmail.com





FAUP - PATH TO KNOWLEDGE

Jacinto Monteiro

<http://www.metrocubicoblog.com>

info@metrocubicodigital.com



GUITARIST

Gun Phil Park

<http://www.oxcube.com/cgpark>

kmcism@hotmail.com





CLOSE-UP PORTRAIT

David Moratilla

<http://www.davidmoratilla.com>

dmoratilla@gmail.com



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PAGE 068

MODELING FEATURES OF THE HUMAN ANATOMY

CHAPTER 5 - FEET



Modeling the features of characters is something that has caused problems for many artists over the years. A good model can easily be spoiled by an incorrectly modeled feature, such as a hand or an ear. This eBook offers a step-by-step guide to help you make sure you never struggle with feature modeling again, presenting detailed chapters that have been written specifically for 3ds Max, Maya, Cinema 4D and modo.

COMING UP IN THIS ISSUE...

This month our artists will show you how to model feet.

So if you're interested in seeing the fifth chapter of this great series, please flip to the back of this magazine and enjoy.

 3DS MAX - PAGE 068

 MAYA - PAGE 072

 CINEMA 4D - PAGE 076

 MODO - PAGE 080

CHAPTER 1 | MAY ISSUE 069
Creating the Concept and Modeling

CHAPTER 2 | JUNE ISSUE 070
Mapping

CHAPTER 3 | JULY ISSUE 071
Texturing

CHAPTER 4 | THIS ISSUE
Rendering and Presentation



LOW POLY CHARACTERS

Low poly characters with painted textures can seem a little old school at times, but in this series Tamara Bakhlycheva embraces the old style and shows us how to do it well with fascinating results. In this series Tamara will walk us through the entire process from the basic modeling through to the texture painting and posing. Most of the steps will be taken in Maya, but there will also be an opportunity to look at the benefits of using other pieces of software in your workflow.



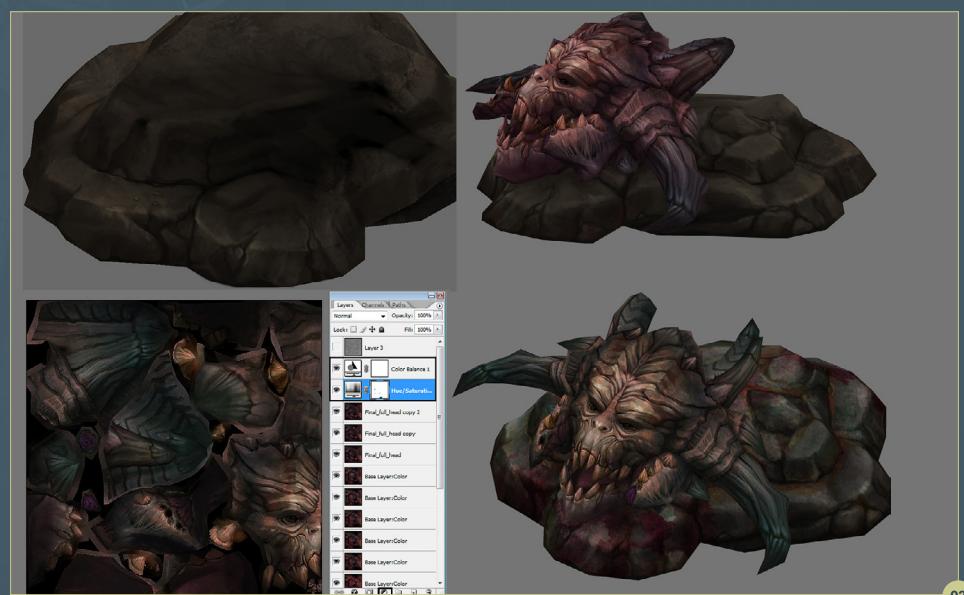
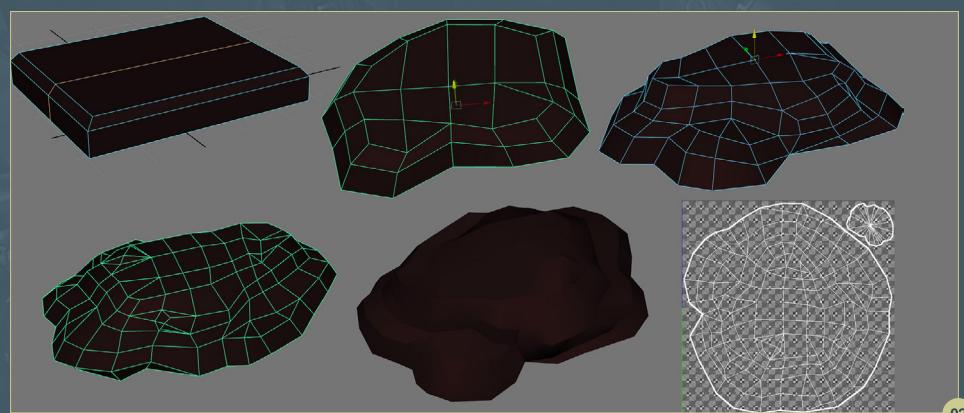
CHAPTER 4 - RENDERING AND PRESENTATION

Software used: Maya, Photoshop, ZBrush, Deep Paint, Marmoset Toolbag, Adobe Premiere and Faogen

You'll probably be exhausted after working on your character for so long and you probably feel that you don't want to look at it anymore. This sometimes happens with me too, but the next part is just as important as the previous stages. It's very sad when looking at forum competitions to see potentially good entries that were ruined by poor presentation and renders. Respect your art and value the time you spent on it.

I think that the pedestal for a character has to be a piece of its environment. It can be a simple piece of rock or something that says something about your character and his occupation. At the same time though the pedestal should be simple so it doesn't distract the attention from the main character.

The Demon Chaser name made me think about a hunter who displays their hunting trophies. I decided that a severed demon head would be a good choice. I had no concept for this head so I spent some time just moving vertices before I created an interesting and recognizable

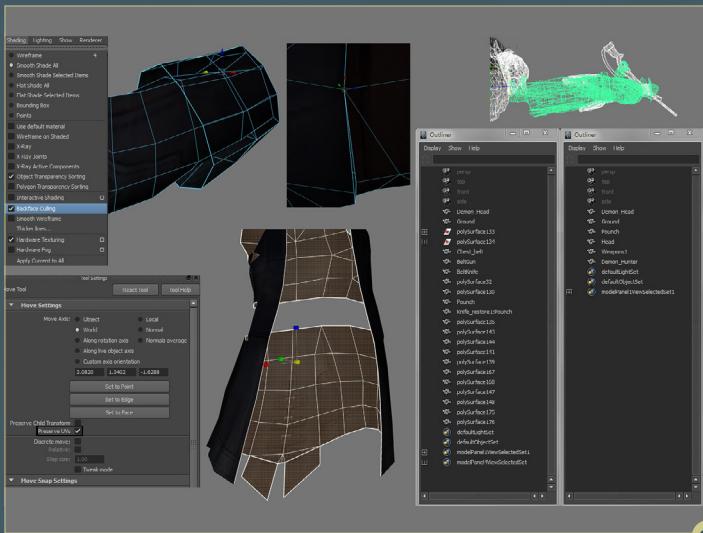


silhouette. The first colors were too bright, so I de-saturated them. I also added some unsymmetrical details by breaking the horns (Fig.01).

I made a piece of terrain from a simple box (Fig.02). The texture of the terrain was painted in the same way with a rough base color which then had a detail pass and photo textures added

to it. Using an adjustment layer helped match the colors of the head to those of the plinth (Fig.03).

I didn't use a rig for creating the pose, but you can if you wish. For me the easiest way to pose the character is using Soft Selection. I separated parts of the body for comfortable bending. I did two poses for some variety (Fig.04).



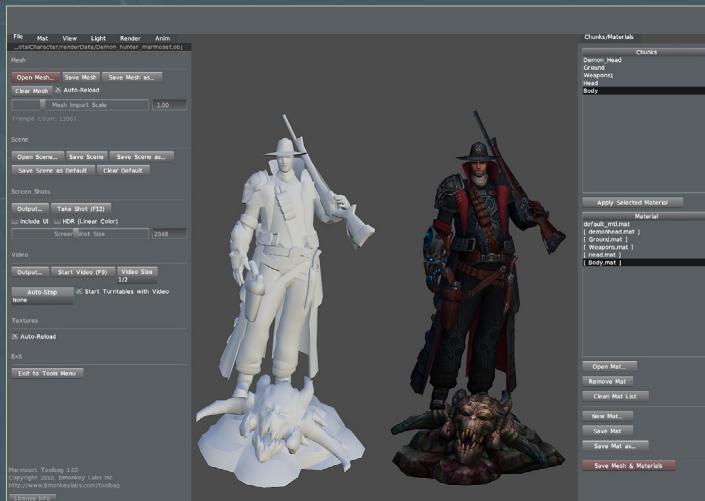
05

Preparing the model to export into Marmoset takes some time as well. I used the Preserve UVs function to maintain the texture when I moved points around. I cleaned up the outline and turned the model horizontally before exporting it (Fig.05).

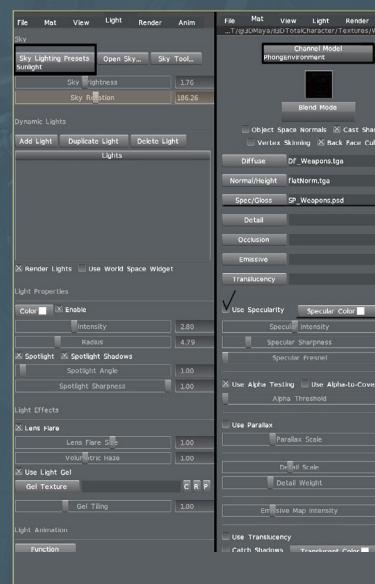
The Marmoset Toolbag is a really great tool for creating fast previews of game models (official site <http://www.8monkeylabs.com/tech/toolbag> – you can download a free trial version here). After the model is imported create a new material and name it. Select the mesh and assign the appropriate material to it. In the File menu you can set up auto-reload for the texture and mesh, which will update the texture and mesh every time that you adjust the texture in Photoshop and upload it again. That is why Marmoset is so good as a model viewer when you are painting textures (Fig.06).

Choose the Sky Lighting presets and move Sky Brightness and Sky Rotation. Choose a shader type in the Channel Model and set up the specular. You can move the sky while holding Shift. Hold Alt to rotate and move the camera and Ctrl to move and rotate the model (Fig.07).

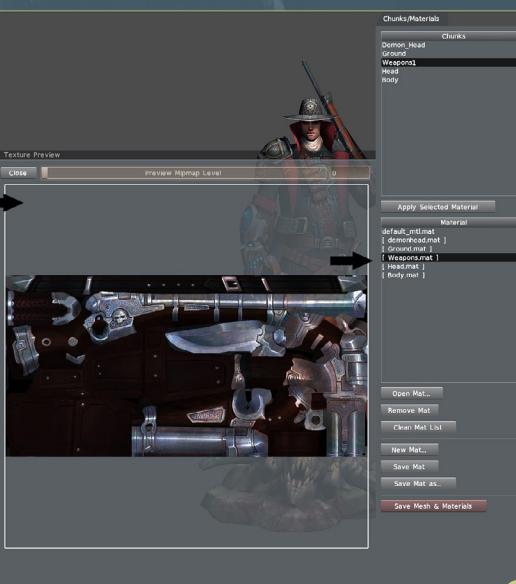
I chose the Forest Ambience preset and installed a second light. The blue light will add a rim light to the model and will make it look less flat. It will also cast intensive specular highlights on the metal parts of the model (Fig.08).



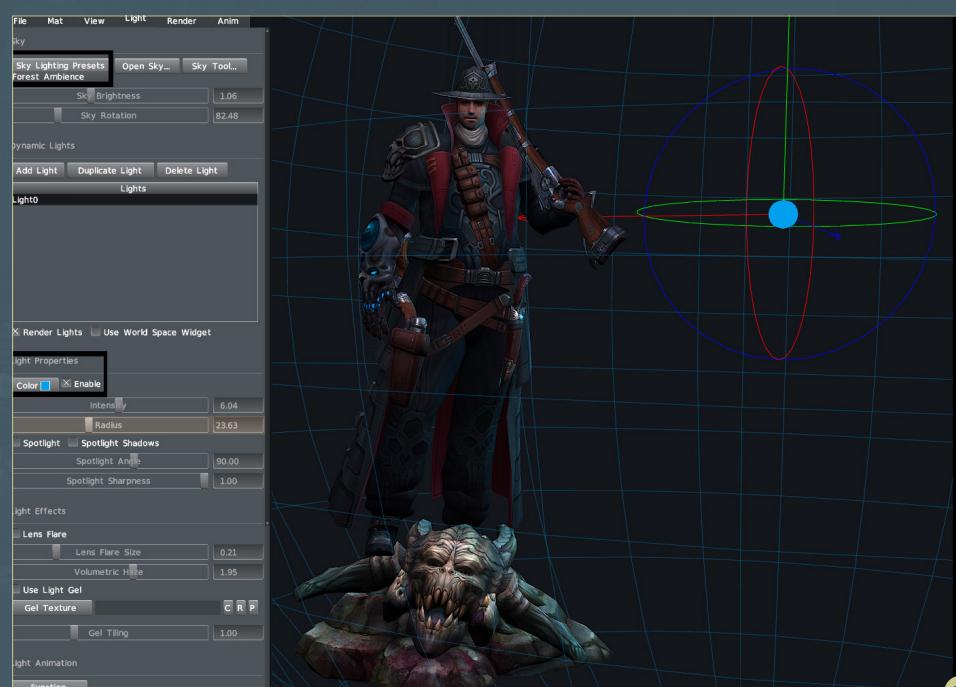
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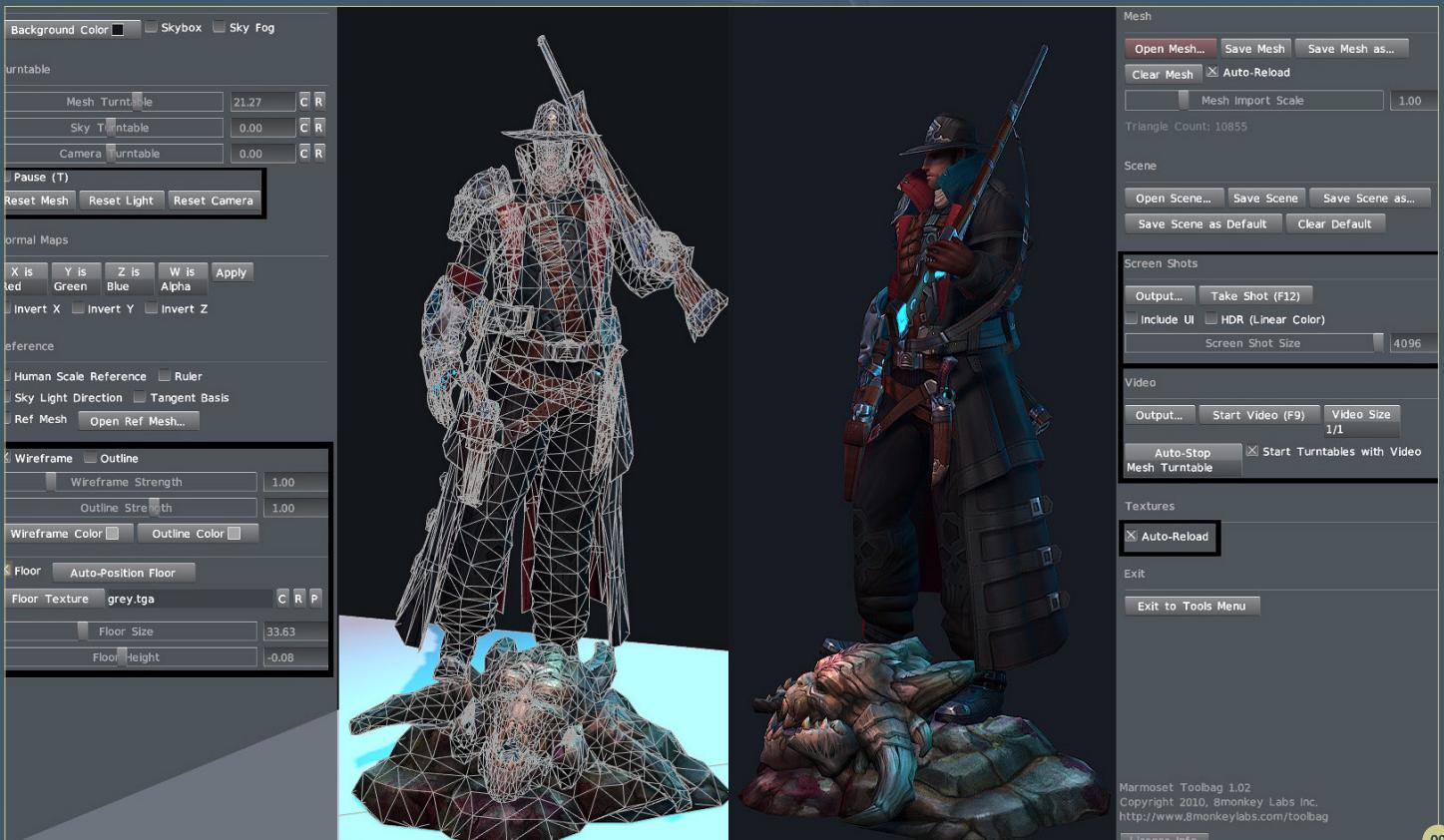
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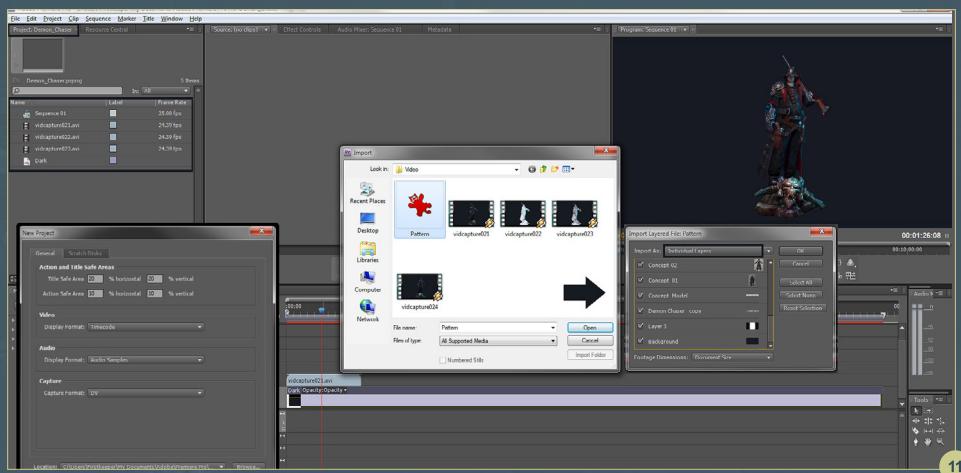
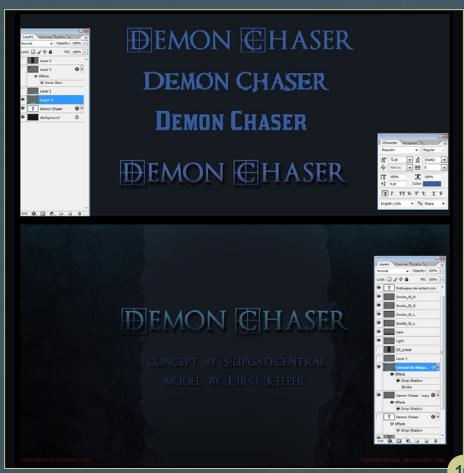


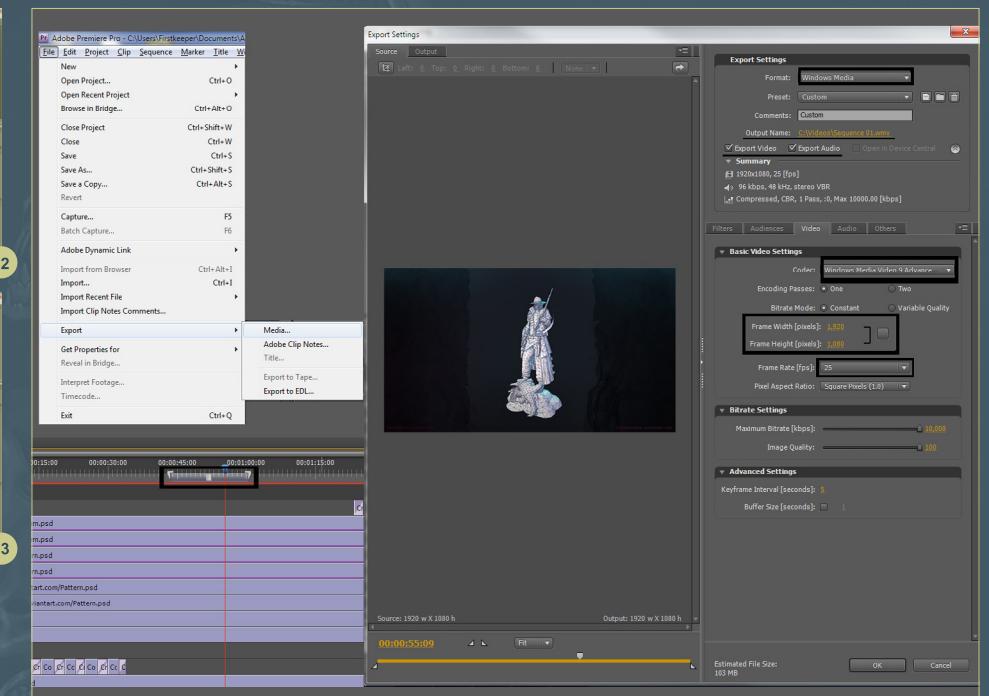
In the View menu I set the background color, turntable speed and wireframe. In the Render menu you can add post-effects if you wish; I only added Sharpness. For capturing video and screenshots set the output folder and resolution. I also used an Auto-stop Mesh turntable to capture the video, which stops after one full turn. To reset the model to the start position press Reset Mesh. Don't make the turntable speed to fast; it can cause some of the artifacts to appear on the video. I did three video loops and screenshots with the diffuse gray material and a wireframe (Fig.09).

Fig.10 shows a PSD file, which we'll use for composing our turntable. The size of your file should correspond to your video's resolution. I'm going to make the video in HD resolution, so my PSD file is 1920 x 1080 pixels. I downloaded a few different fonts from an online library and picked one. It's better to use one font or two that are similar to keep everything the same style. The background color should be the same as the render's background. All gradients can be added later in Adobe Premier. All layers from that PSD can be used later for my turntable. I did two dark torn surfaces on the sides and left

a free space in the center for the model. I also put Slipgatecentral's concepts in the same file and each concept has its own layer.

The first thing that you need to do in Adobe Premier is create a new project. Import your video files and PSD as individual layers. You can work with the PSD in Photoshop and add new layers later, but be careful – if you change the name or position of a layer that you have already put in Adobe Premier then it will ruin it. So I suggest adding all layers before you import them (Fig.11).



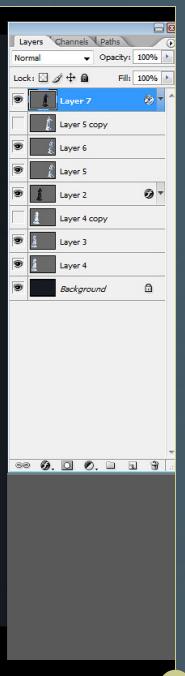
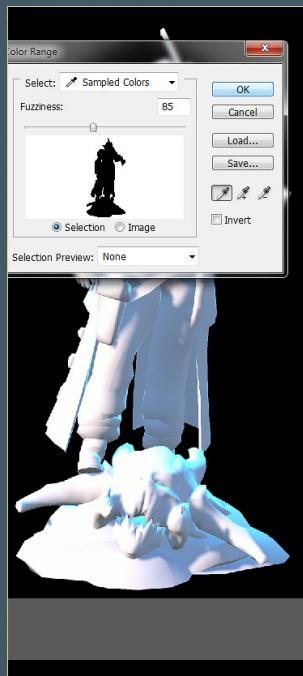


Adobe Premier has a logical and simple work space. In the left window there are imported files, so it is a bit like a plate with different ingredients on it. The Timeline Zone shows the video and audio tracks. This is our table where we prepare and put together our ingredients. All you need to do is take one imported PSD layer and place it on the track. You can add, rename or delete tracks. Tracks with permanent layers like the credits and gradient go above the other layers. The background layer goes first at the bottom. We'll also use the Effects, Effect Controls and Sequence preview window. In **Fig.12** is a little demonstration of the most often used video effect: Cross Dissolve.

You can add a soundtrack or audio if you wish. The final touch here was to animated the smoke layers. When I imported the smoke it was in Normal mode, but Adobe Premier allows you to use Photoshop modes, so I changed it to Overlay and applied a Wave Warp effect for each smoke layer with slightly different settings. Adobe Premier has a lot of interesting effects which you can use for your own presentation; don't hesitate to study them all and find the one that suits you best (**Fig.13**).

Balancing quality and file sizes can be quite a hard process. My final settings are on the right of **Fig.14**. You can see the video here: <http://vimeo.com/19114702>.

I used the same colors and pattern presets for the final shots as I did on the video. I spent some time moving the figures around until I was happy with the presentation. I usually mix the wireframe in Multiply mode and a plain gray model for the final presentation (**Fig.15**).



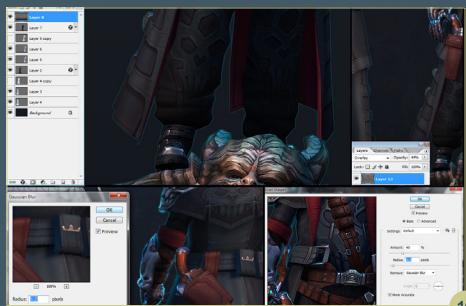
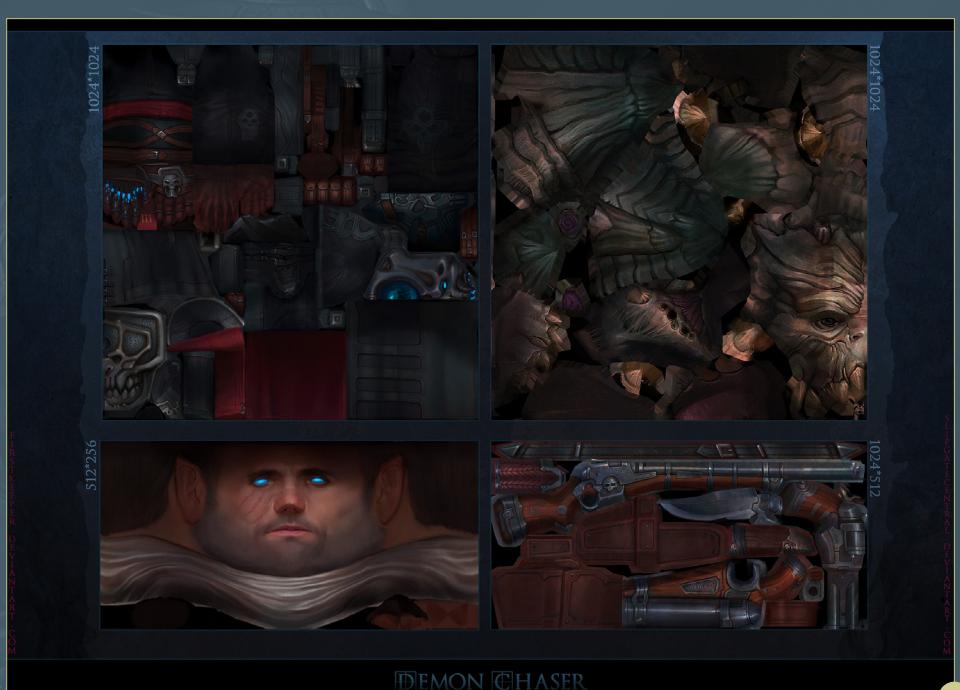


Photo textures work quite well in the background. Add details to your final presentation carefully and remember your character is the main focus here. Don't let anything steal attention from your character. Bright and intensive colors in the background are not a good idea.

The final step is always to use Smart Sharpen. This operation, when used in conjunction with Blur and Sharpen, gives the illusion of depth. You can also try to do it using Marmoset post-effects. I usually do three or four shots of one pose and present it with some other shots showing technical information (Fig.16).



These are my final images to present in the forums (Fig.17 – 19).

Thanks for reading my tutorials! I hope you learnt something new. Special thanks go to

Vadim Bakhlychev aka Slipgatecentral (<http://slipgatecentral.deviantart.com>) for help with the text and the great concept. Many thanks to 3DTotal for their patience and for being the guys who make these tutorials happen.



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For more from this artist visit:

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CARTOON ANIMALS

Creating cartoon animals is a great starting point for anyone who is thinking about having a go at 3D. Cartoon animals are usually made up of shapes and forms that are fairly simple to model and since realism is not the focus of this kind of work, it gives you an opportunity to be expressive and experimental at all points of the creative process. In this series our artists will be talking you through how to approach this task, firstly by concentrating on how to create your idea, but then moving on to the modelling, texturing and post-production. Each chapter provides you with an opportunity to see into the workflow of these industry professionals who will give you a priceless insight into what is a huge part of the CG industry.



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JULY ISSUE 071 Chapter 01 | Mosquito THIS ISSUE Chapter 02 | Emu NEXT ISSUE Chapter 03 | Armadillo

OCTOBER ISSUE 074 Chapter 04 | Scorpion NOVEMBER ISSUE 075 Chapter 05 | Squid DECEMBER ISSUE 076 Chapter 06 | Sloth

CHAPTER 02: EMU

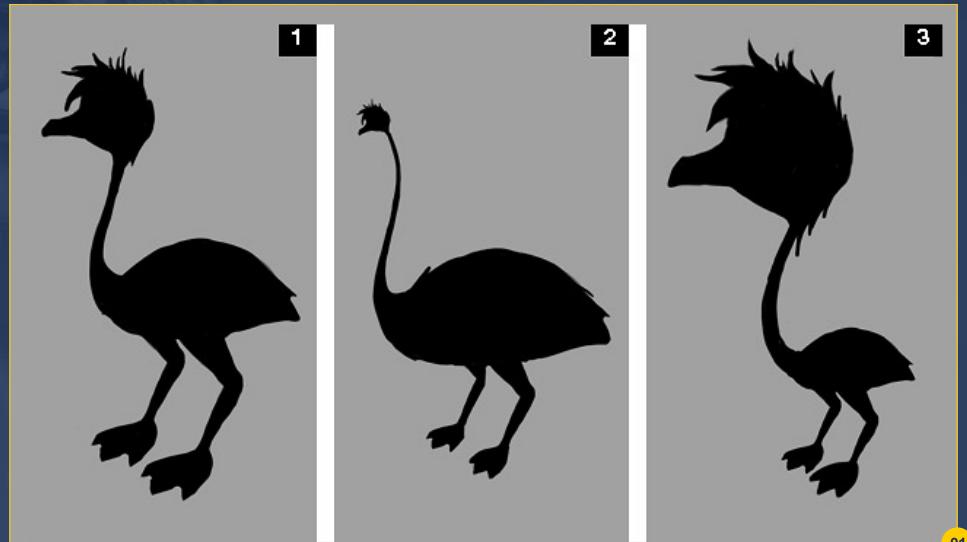
Software used: 3ds Max and ZBrush

Hello! My name is Yaroslav Primachenko and this tutorial is all about designing cool looking cartoon animal characters.

DESIGN AND SKETCHING

The first thing you need to know is how you are going to make your character unique and recognizable. This is really the first and main goal you want to achieve. You could do a great job of the modeling, spend half of your life on the lighting and texturing, ruin your health while setting up the render through sleepless nights, but if the design doesn't work, neither will the image. So let me walk you through the process of designing my Emu character and explain the basic principles I used while creating it.

The first thing that makes the viewer pay attention to the character is its silhouette – its proportions and contrast. And I'm not only talking about the contrast in color, but mainly the contrast that defines the basic shape of your design. Strong characters can have a very small head and legs, but a huge body and muscular



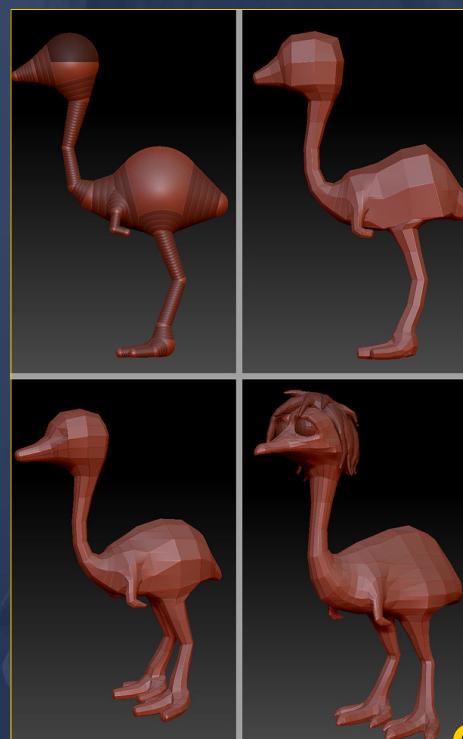
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hands. This is just an obvious example; there are millions of different combinations, so think of them when designing your characters. Make it visually strong and recognizable so that it works even in a low light or strong back-lit situations, when the beautiful color or all the lovely details that you put into the character really doesn't make any sense. Take a look at some really successful characters and ask yourself what makes them work. Try to analyze and understand the principals they are built on. But don't stare too much, especially right before the designing process – you could end up copying

someone else's work. Do it in your spare time – when watching TV, eating your cereal, talking to other people or planning an evil plot against the world!

First of all I searched for some reference images of a real emu. What I liked is that its feathers look like hair both on its head and body. I checked the internet and found out that emus have much softer and more flexible feathers than other birds. I thought that it would be a good idea to exaggerate this feature. I had several ideas about the main proportions of the body and after some thinking I decided that the first design in **Fig.01** was the one I liked best. Though I liked the idea of making the head of the character very big, or making it hardly visible, I didn't like that it made my design look too childish or created the situation where the face would be very hard to read.

I started with some quick pencil sketches (**Fig.02**). As I didn't need to present them to a client I made them quick and dirty. The main goal at this stage was to work out the basic proportions of the character, its silhouette and facial features. I also had to give it a stylized look whilst making sure it remained a recognizable animal. I quickly moved to ZBrush as I find ZSpheres a unique and handy way to create basic topology and work out the proportions and silhouette of a model (**Fig.03**).



03



DETAIL

I converted the ZSpheres into a mesh and continued working on the character. I decided that my character should have hair so I made a mesh to represent it and blocked in the main parts to better understand the proportions. I also decided that my character should have some kind of scarf on as the references of the emus had a lot of hair around their neck, as if they were in constant fear of catching a cold (Fig.04).

I moved the model to 3ds Max and continued working on the design by blocking out the big parts but not concentrating on the details. This is also the time when I started thinking about the color of my character. Though natural emus are a gray/brown color it would not be the best solution to leave it like this and so I decided to change the color scheme. I roughly colored the character and it seemed okay to me (Fig.05).



After that I made a draft render and took it into Photoshop. I added some details quickly, just to have a sense of what the finished character could look like. I was very aware that my emu looked a bit like a chicken (don't get me wrong – I like chickens). I also didn't like the proportions so I made some improvements using the Liquify filter in Photoshop. By the way, for those of you who can't find it anywhere you have to download it separately for CS5 from the Adobe site. As far as I remember it was included in the standard CS4 pack. But this is one of those "must use" plugins when designing a character. It means you can quickly and easily change the proportions of your model without having to spend much time on it. You can use this chance to spend 15 minutes thinking about where you

want to head with your character, then you can remodel it later. It is always a good idea to exaggerate the key features of your character as it will help people to relate to your design better. As you can see I have made the neck and its legs much thinner and the body smaller, thus adding a desirable contrast to the character. The combination of a heavy head and huge feet on a thin neck and legs makes the character look the way I wanted it to (Fig.06). And now it didn't look like a chicken! Great!

CHOOSING COLORS

I continued to work on the design in ZBrush, improving and tweaking it and starting to add some detail (Fig.07). Some people add color to the character only after finishing

the modeling process. I like to do it earlier than that as color can tell you a lot about the character's personality. For example, dark color combinations are for bad guys, whereas light colors usually express good and friendly characteristics and contrasting combinations of blue, red, green and so on are for superheroes. From time to time I turn off the diffuse to see the geometry clearly, but most of the time I work on the two together.

I like to use the ZBrush UVW Master for the draft unwrap; it's a really a brilliant plugin that saves a lot of time. I usually fix it a little to make it possible to use more of the UVW space and make it easier to paint extra details in Photoshop later. I make some test renders in 3ds Max with hair to make sure all the parts work well together.

There's no magic behind the texturing process, you just have to keep in mind the final design and make the color work best for it. Don't try



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to use millions of colors from the beginning. First, fill the main parts of the character with solid color and if it works nicely then start to add variations and all the details you need.

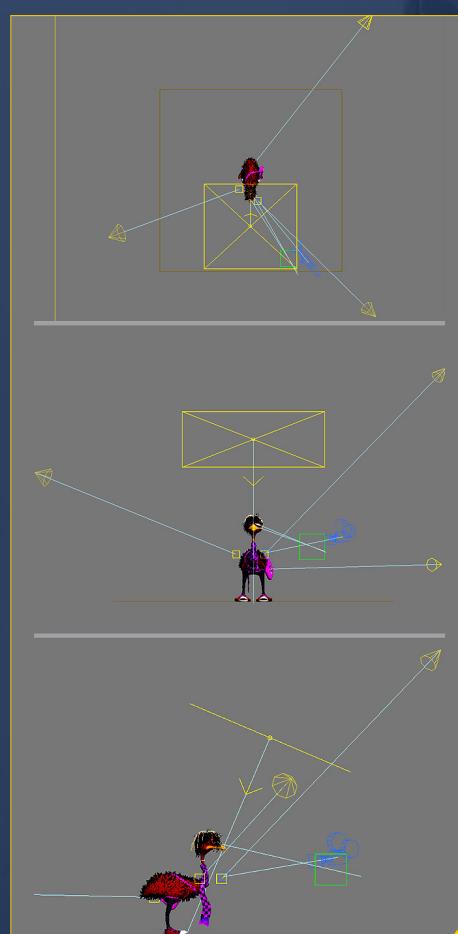
Remember that your character will look better if it has one dominant and a few complementary colors. When designing the emu I decided that it would be a character that basically looked cool and slightly evil (hence the teeth) though not very clever. So I mainly used bright and saturated combinations as the base color, but also added some blacks (Fig.08).

of his clothes? That's how you have to be – like Sherlock Holmes, just with only one difference: you have to tell the viewer through the details, not guess. I decided that my character would be a bit of an emo. I didn't want to depict it fanatically, but just wanted to give a sense of it.

LIGHTING YOUR DESIGN

Though the lighting may seem like it is something that doesn't directly concern the character's design, the truth is you can tell a lot through the way you light your character. You can make it look more evil by lighting it from beneath, or mysterious by lighting it from the behind. The lighting and atmosphere should reinforce the character's personality.

Well, after saying all that I should be honest and tell you that in my case the lighting was rather simple. I wanted to stylize it to make it look like an amateur photo with over-burned areas, noise in the shadows and all the stuff you usually see on the internet when people try to take photographs of themselves. After some thinking I admitted that it wasn't the best idea in the world as I not only wanted the picture to be funny, but of a good quality too. The lighting set up looked like this (Fig.09). A V-Ray light



DETAILING YOUR DESIGN

Clothing can tell a lot about your character, such as its background and habits, so don't underestimate this part of the designing process. Though it should be recognizable without any clothes on at all, this is a good chance to exaggerate some of the key features and add extra detail. For example, torn and dirty clothes can be used for poor characters. The eye patch and a wooden leg is what makes a pirate a pirate! Well, of course it shouldn't always be that obvious. Remember Conan Doyle's Sherlock Holmes and how he used to be able to tell the background story of a person just by looking at him and analyzing the small details

for the main fill light, and three spot lights with attenuation – one for the rim, the second for the key light source and the third for some additional backlighting. I also added a plane under the character with a radial gradient in the material's opacity channel, so that the floor kind of fades away to the edges of the picture.

FINISHING YOUR DESIGN

I didn't use many post effects on this image. I rendered the scene in several separate layers – Specular, Reflect, Hair, Ambient Occlusion and so on – then combined them using Photoshop. I added a few texture layers on top of the image to add some depth and take away that digital look a little. I created the new layer, set it to Soft Light and drew some extra highlights using a soft brush just to make the image pop a little more (Fig.10).

CONCLUSION

I hope you learned something from this tutorial and found it interesting. Thank you for reading – now it's time to go and make some designs to rule the world!

YAROSLAV PRIMACHENKO

For more from this artist please visit:

<http://www.yar-design.com/>

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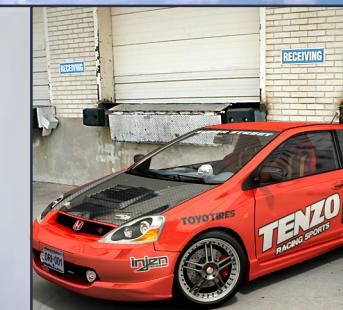
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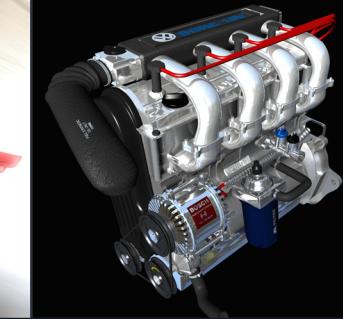
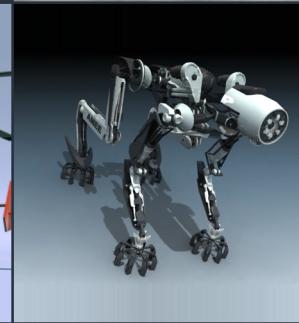
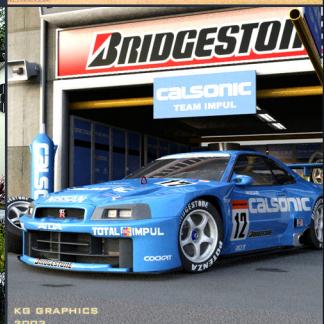
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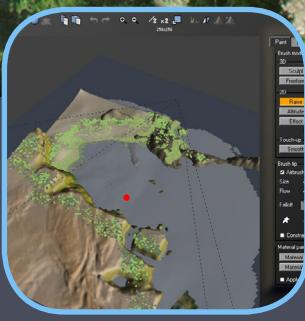
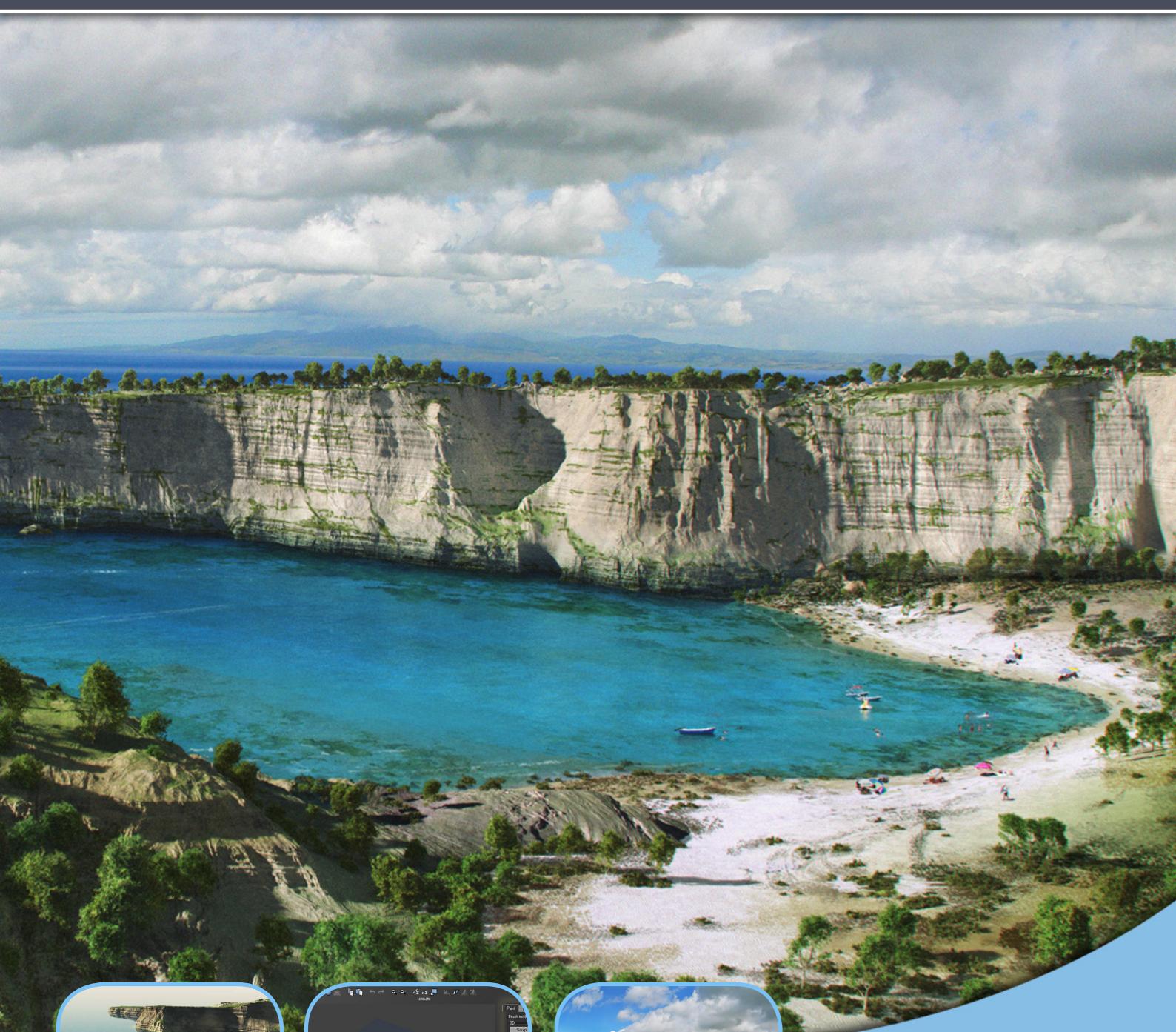


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VUE ENVIRONMENT CREATION



Chapter 1 | The Bay

Vue is a fantastic piece of software that is being used more and more in the movie industry to create beautiful, realistic environments. It can meet the needs of almost any artist in any situation and, as with most CG packages, the

only limitation is your imagination. In this series Alex Popescu will be exploring how to get the best out of this versatile software, talking us through all the options on offer and looking at the ways in which Vue can be used to create

stunning environments and back-drops. If you are interested in Vue as a piece of software, or if you are thinking of having a go at creating CG environments, then this tutorial is the one for you!

CHAPTER 1 - THE BAY

Software used: Vue

INTRODUCTION

Welcome to the first part of a series of Vue tutorials created for *3DCreative* magazine. We will be exploring the creation of landscapes, tackling a different environment each month.

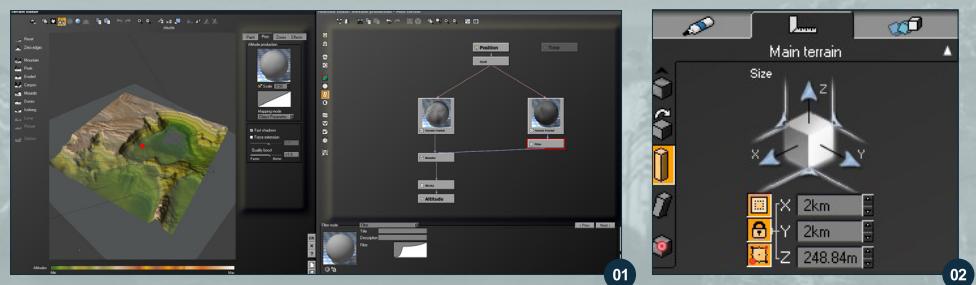
The special thing about this series is that the tutorials will be very results-driven. This means that I will concentrate on pointing out the essential elements of landscape creation and a cost-effective way of getting great results, rather than getting stuck into the technical side of things. The reason I am doing it like this is that I want to write articles that are easy to follow and that are about the principles more than anything else. Working as an environment artist in the film industry, I know the pressure of production and that is why I feel the end result is the most important thing. The software is just the tool that will help you reach that result.

The series should be interesting for beginners and intermediates, but it will also be filled with enough great tips to keep advanced readers interested. I would like to start by recommending that you take a look at the work of Dax Pandhi. He is a very advanced user who creates stunning final results.

CHOOSING YOUR SUBJECT

Starting a new project can be a bit difficult. But the most important thing is to set a goal. If you already have a brief, that shouldn't be too hard. If you don't, take the time to come up with one yourself. Working without one can be a lot of fun as a quick exercise, but when working on a bigger project the goal should be very clear from the beginning.

For the first tutorial we're going to create a Mediterranean-style coast scene. I know that I want to go for a result that looks pretty



photoreal, so it makes sense to start by looking for good reference images as this is the key to creating realistic 3D environments. It is easy to get carried away into thinking that your image looks photoreal, but only by comparing it with real-life examples will you be sure of that. I will talk a bit more about this later on.

THE TERRAIN

To build my coastline, I start with a procedural terrain (**Fig.01**). By editing the function that generated the terrain I create the result I want. The setup is based on a model created by Dax Pandhi. This approach uses two terrain fractals that are later combined. I use one of them to create the larger features of the terrain and then the second one for the more detailed shapes. The one that creates the large features has been filtered to give it a canyon aspect. I need that for the steep cliffs of the coastline.

The two terrain filters can then be combined with a Blender node. You have to experiment with the values of the nodes until you get the result you are looking for. This is where experience and technical training comes into place. You

should know that by clicking on the Terrain editor window with the Function editor open, you will update the preview of the procedural terrain. So any changes you make to the nodes will be previewed straight away.

The last node I use is a strata filter, which creates the nice lines running across the full length of the coastline. There is just one thing to be careful with here: the scale of your ground. Having the right scale set up will save you a lot of trouble later. Go to the Size tab, lock the scaling proportion and then choose the size you are aiming for (**Fig.02**).

SETTING UP THE CAMERA

Now that we have a general idea in place for the terrain, we can choose a nice camera view. Before I do this I create a sea layer, because the water level is going to affect how much I see of my terrain, and of course the composition of the image. After doing that, I am free to move around with the camera, and choose something I like. I want to see the nice steep cliff in the distance, the bay and have an interesting foreground, so let's go for something that

includes all of that. This is a moment where you should spend a bit of time exploring your scene because you might find some great surprises. This is where the power of Vue becomes obvious: after just one hour of work, you are already exploring a full 3D environment.

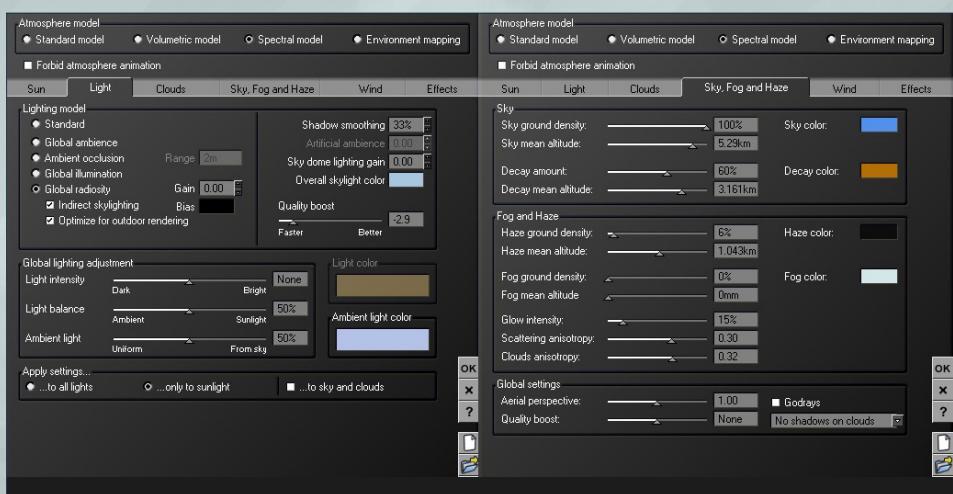
SETTING UP THE LIGHTING

After finding the view that looks right, there are still two things to worry about. The first, and probably the most important, is the lighting. Choosing the lighting scenario is very important so this is where having a good reference comes into play. Find a good image and aim to light your scene like that.

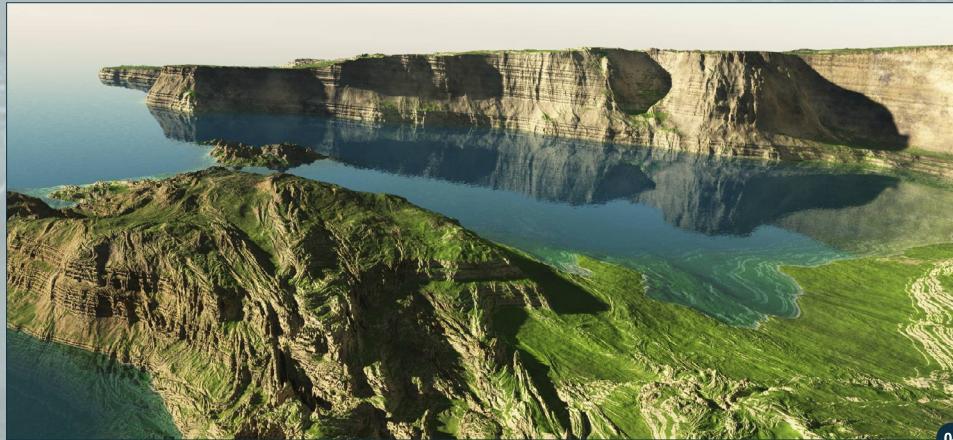
My advice would be to start from one of the default “physical” atmosphere setups. Choose a good direction for the sunlight that helps to show the volumes of your terrain. Usually a side light which is not too high will give you nice daylight results. Here are my atmosphere settings (Fig.03). Notice the lowered setting for the quality boost which improves the render times. Of course, if you are not planning to move the camera you can reuse the indirect lighting calculation to speed up your test times.

THE FIRST RENDER

Before starting the first render there is one last thing we have to take care of: the material of our terrain. For the first test I use one of the default materials, “Rock and Grass”, from the Landscapes option. It helps you read the volumes of the terrain well. I leave the water with the default material for now, choose the



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04

“Final” render preset, and press go. Here is the result (Fig.04). It isn’t the most photoreal thing you’ll ever see, but we still have a way to go.

BUILDING THE MATERIALS

The next step is to start working on the materials. I’m happy to keep the lighting as it is and the terrain also looks like it could work for now. What you have to keep in mind when reading this is that my approach is influenced by how you would work with this kind of scene

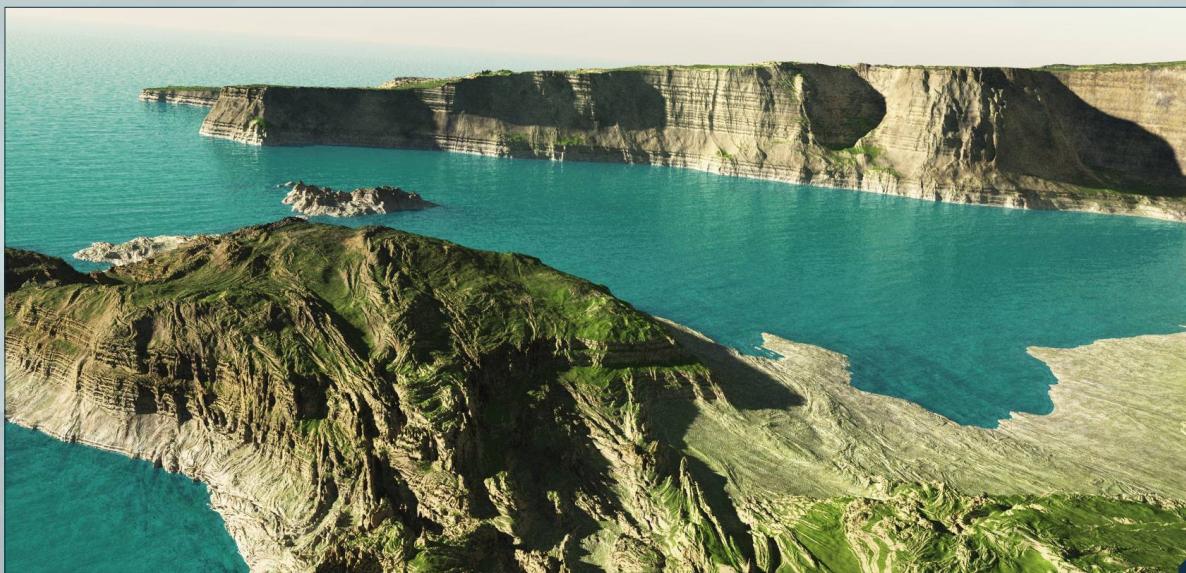
if it was for a movie. I’m trying to keep the elements as neutral as possible, with a lot of range for changes. Our final result is an image, which means that I will do all the final tweaks in Photoshop, so the important things to concentrate on now are those elements that I can’t control there.

One of these things is the distribution of materials. This is where we get to see the power of the Vue Material editor. One of the things I use most is the altitude distribution. With the correct settings, you can create a complex material that simulates real ones very closely.

In the case of this image I start by working on the cliff material. By using the mixed material and altitude distribution I create three big areas: the cliff, the beach and the underwater sand (Fig.05). I also modify the parameters of the water to get it closer to the look I want. It’s looking way too transparent and reflective at



05



the moment so let's concentrate on those and change the overall hue. This is what I've ended up with (Fig.06).

CONTROL IS THE KEY

It could get a little tricky now because of the large scale, but I want to further refine the materials. The obvious solution is to try to split the terrain into smaller pieces that will be easier to control creatively. So I duplicate my ground three times and then sculpt away the parts I don't need. This makes working on the scene a lot easier in the long run (Fig.07).

FOCUSING ON SPECIFIC AREAS

The next natural step is to focus on improving each piece of the terrain. So I start with the far cliff, working on the material. I add another step, trying to create a darker line along the area where it makes contact with the water (Fig.08).

This idea came from looking closely at my reference images.

Please keep in mind that when working on a specific area you should always use the render region option to reduce the time wasted in the test renders. You might have to test the values of the mixing amounts in the Material editor a couple of times until you get what you are looking for. An important detail is to specify the way the two materials blend and if you want a

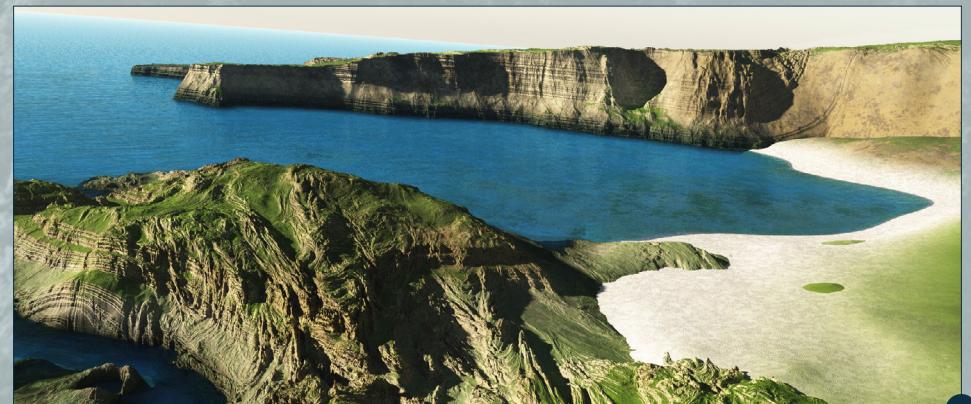
sharp or a progressive transition between the two. In this case I want a sharper line to get a better feel of that area where the water touches the cliffs. I apply the same technique on all the terrain segments. It is also noticeable that I've changed the color of the water to create a better sense of scale. Having deeper blue for the water means having deeper water and therefore automatically a bigger scale (Fig.09).

ADDING THE VEGETATION

I'm happy with the terrain now so it's time to start working on the vegetation. The ecosystem technology is what revolutionized Vue a couple of years ago, and it is a very handy tool. In a

specific environment, like this one, I tend not to use automatic distribution, but paint the areas I want the vegetation to grow on. This way I have a lot more control over the vegetation and on the composition. Adding vegetation can be a very tricky task though. Recreating the natural variation is not easy, and a lot of time must be spent trying to improve the look of your ecosystem. Because of the more general approach of this tutorial, we will not go into that, but keep in mind that this is a very important point when you are creating your 3D environment.

A lot of the time you might need to create custom plants, or even use outside models to



get the look you want. Again, I have to repeat, having good reference images is essential (Fig.10).

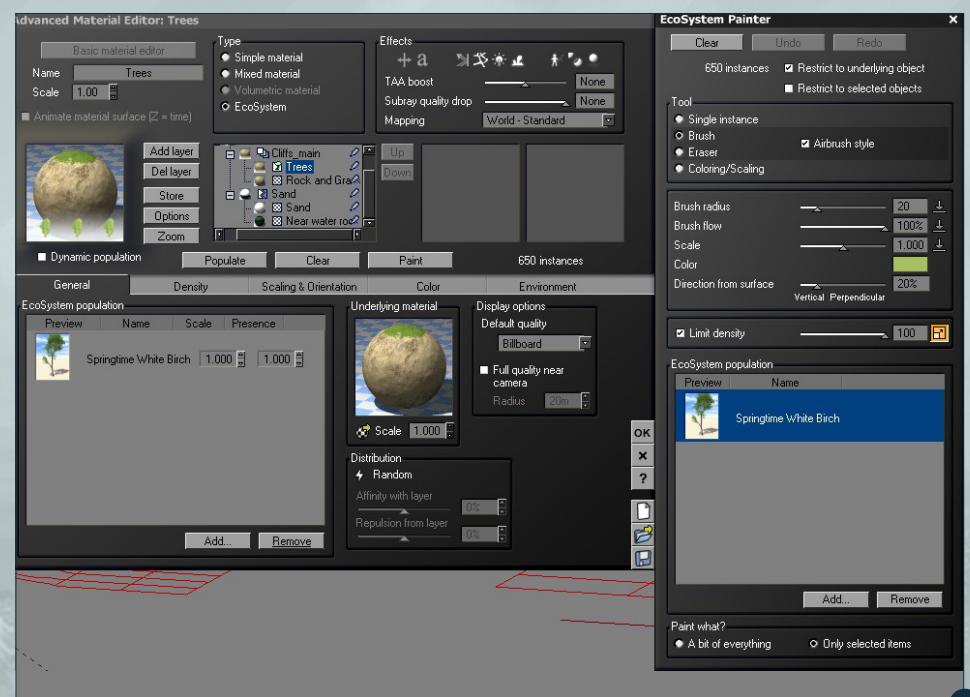
But as I said, I want to keep it simple and so I only use a type of tree, the "Springtime White Birch". Here is how our scene looks after the ecosystem painting (Fig.11). The beach seems a bit too empty so let's add some bushes using the same technique (Fig.12).

ADDING DETAILS TO THE TERRAIN

Now that the general elements are in place, we can concentrate on making things a bit more interesting. The far cliff looks a bit boring, so let's modify the terrain a bit on the far edge. Here is how the terrain looks after I've worked on it a bit (Fig.13). When making these kind of changes always check the result through your render camera. There is no point in making it look cool in the terrain editor if it is not interesting in the final image. I know there are some artefacts here and there, but there is nothing that cannot be fixed later (Fig.14).

RENDERING THE IMAGE

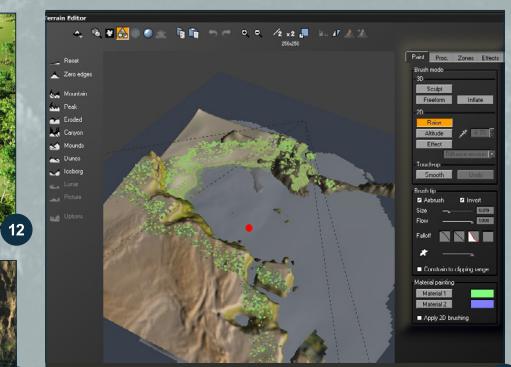
At this point, I'm happy enough to start a serious render. Not everything is perfect and it doesn't look photoreal, but I have faith in the way things were going. This is another step where experience will tell you say if it's the right time or not to go to post-render work. On the other hand, you can always come back and tweak stuff, so if you feel like throwing your renders into Photoshop and playing with them give it a go and see what happens.

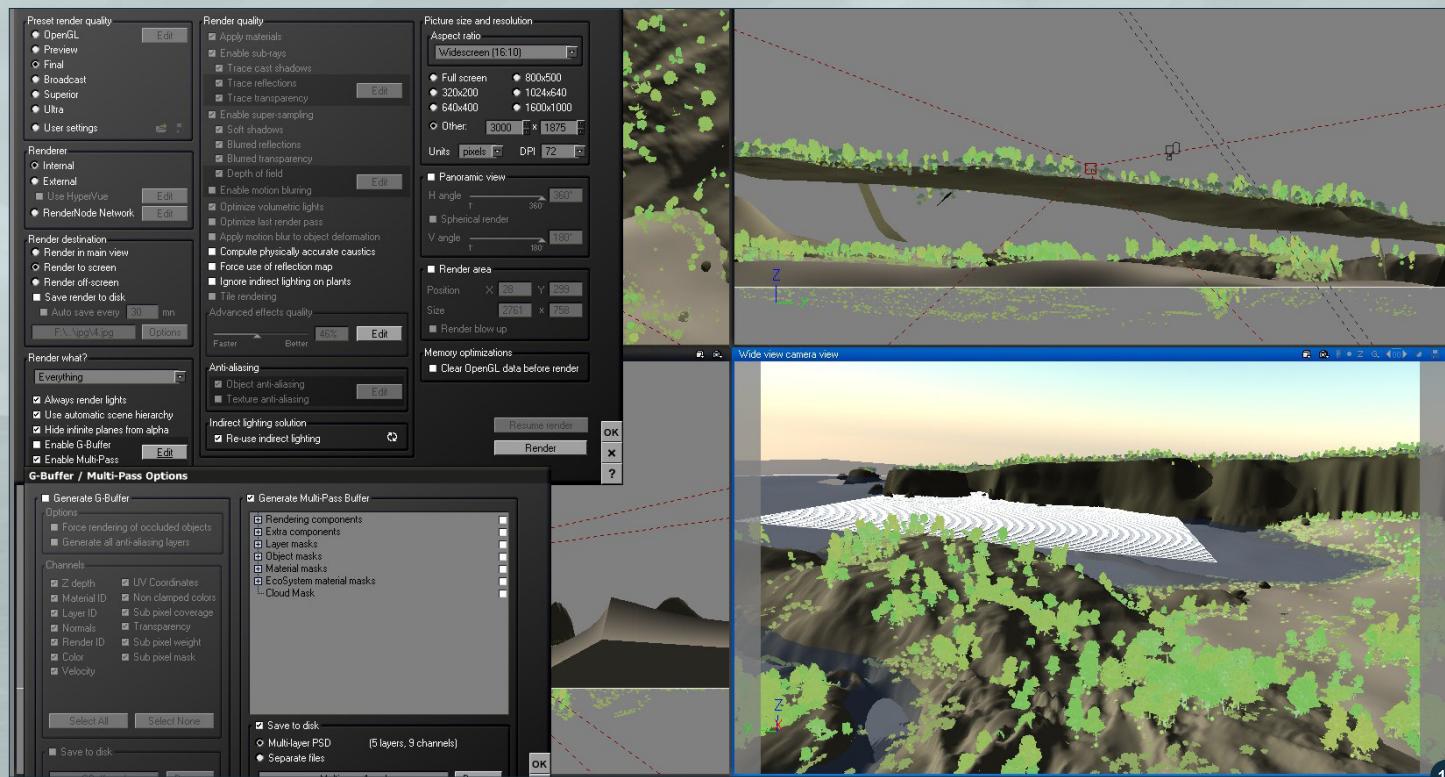


It's time to prepare everything for Photoshop now. It's not just about the render at this point, it's also about all the things you can use in Vue that could help the tweaking process later. Enable the multi-pass render, and start adding stuff that you think could be useful. You should always render passes like ZDepth, Indirect Illumination, Shadows, Reflection etc, plus

object masks, material masks and any other thing you think might help. Be careful though; this will increase your render time, so if there is a time constraint, keep it under control.

Be careful with the output PSD file. All the layers will be locked and there will be a lot of information in extra channels (object alphas,





etc). When you open the PSD file look around and try to think about the way that you could use the extra passes. They will have several blending modes which can be changed by default, so take a look at how they look in Normal mode – you might be surprised at the effect (Fig.15). Here is the render with some extra passes on the bottom. So the work is done now, surely? No, not even close (Fig.16)!

THE PHOTOSHOP PROCESSING

As I said earlier, what I'm actually looking for in my Vue render is a good base to work with. That means that I want all the elements in place, I need the lighting, I have all the extra passes, so all I need to do is tweak all this information to get the best result. In film visual effects, the result of the CG pipeline is what we have at the moment and it's the role of the compositor to make all the elements fit together nicely. Of course, this is just a simplified description of the actual process, but the principle is the same.

The reason behind all of this is simple: speed. At this point our render times are already a bit slow. A change in the color of the water will take

way too much time to render. However, having the water as a separate element in Photoshop, allows us to do that extremely quickly. So we can be flexible and creative, and most of all, results driven. Having good references will come in handy again, because right now we can actually have the two next to each other.

Only one question could arise. Given the fact that we are processing the image in 2D, aren't we losing the power of 3D? What if you have a moving camera in your scene? Well, at this time, this is not our goal. We just want to create a good looking image using the power of Vue. And that is still in reach. But, don't worry; there





are a lot of techniques to do exactly the same thing using this process. It's not the purpose of this tutorial, but I will probably talk about this subject in a later article.

THE SKY

I am sure you've noticed that I haven't talked much about the sky at all. Well, there is a reason for that. Even though Vue skies look good, in most cases there is simply no need to use a CG sky. There are tons of amazing picture libraries that you can use, and the result will be well, photoreal. This is what you would do in real-world production where time is an issue, so unless you have a good reason for it, I wouldn't spend too much time trying to get it to look right.

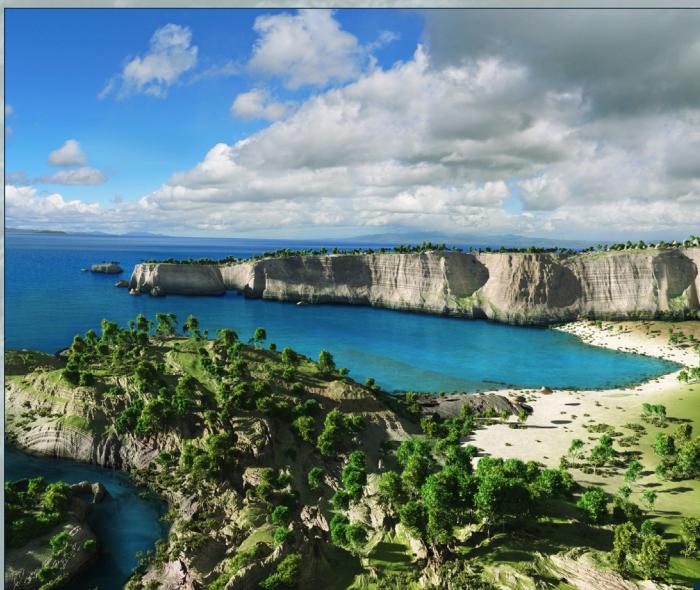
I choose a very typical daylight sky, because I don't want the image to look too dramatic. The goal is still a natural looking image (Fig.17).

COLOR CORRECTIONS

The image is really coming along, but at this point, I'm not very happy with the tones and the values of my CG elements. So by having the reference images on top of my render I color correct my cliffs and my water to match those from the photographs. This way I know I will be closer to real values (Fig.18 – 19). In the next step I take advantage of the extra passes I rendered earlier. For example, I think that the trees are a bit too shiny and the hard light makes them look a bit too plastic. So I

use the indirect illumination pass and mask the ecosystems alpha to get rid of those and add to the natural feel. I add depth to the far cliff using the depth pass, and lower the contrast in the foreground. When doing large scale outdoor environments, it is important not to have too much contrast, because that doesn't really happen in real life (Fig.20).

The next thing I do might look a bit strange, but it is actually very easy to do and efficient. I add a bit of extra detail to the overall image in the places that look a bit too clean to me, by creating adjustment layers and then painting in the masks. For example, on the far cliff I create a Hue adjustment layer that makes it green, and

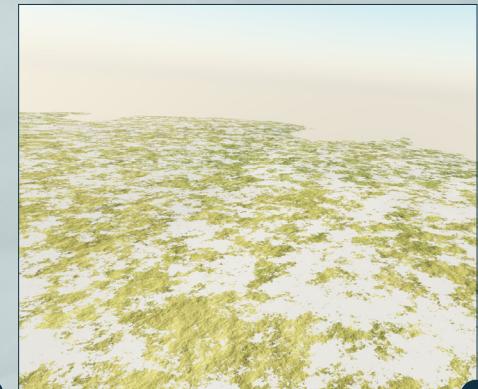


then invert the mask. By taking a small brush and painting in the mask you can reveal a bit of the green in places of your choice. I use the same approach for the beach (Fig.21).

Going back to Vue for a bit of extra help painting bits of grass on the cliff is easy, but some other stuff might not be so. This is true for the water. I feel it needs a bit more underwater stuff around the far cliff, but painting those in could turn into way too complicated a job. So let's go back to Vue and do a fast render of the ground with the underwater sand/vegetation material everywhere (Fig.22). This can now be used as a pass, multiplied and revealed around the far cliffs and shore (Fig.23).

THE FINISHING TOUCHES

The image is starting to look pretty good, right? But there are still a couple of things to do. First, if you look closely, you can see there are still a few places where the render has some issues. Just took the Clone brush and sample some places next to the problem areas. This can be done around the far cliff and the vegetation on the beach, which looks a bit too big (Fig.24).



Time to add a bit of fun to the image! It's a shame to create such a nice place and have nobody to enjoy it, right? So let's bring in a couple of human elements to add a bit of life to the image... not to mention scale and a bit of a story. People love to see environments

populated, and a detail like this can make your image more appealing (Fig.25). The tiny boat on the left really looks great, and helps the composition too.



Speaking of composition, there is one last thing. When I do a Vue render, I tend to render a bigger area than I initially intended, just to get more space to play with. In terms of this image, I think cropping the image will make it look a bit better. So after adding a bit of chromatic aberration, and de-focussing some areas, I crop the image and it's done!

This concludes the first tutorial about Vue environments. If you got this far it must have been a pretty interesting read, so if you have any questions or suggestions for the next month feel free to email me. Cheers!

ALEX POPESCU

For more from this artist visit:

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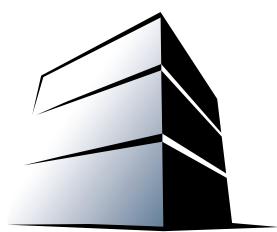
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Mercedes-Benz 300SL (1955)

Cars are a common subject matter in the world of CG. Because of that, to stand out from the crowd you need to execute your plan perfectly and present your car in a way that makes it look a little different. Martin Forgáč does exactly that in this making of for his image Mercedes-Benz 300SL (1955).



“I AVOIDED USING COMPLEX MATERIALS IN AREAS WHERE IT DIDN'T MATTER SO THAT I DIDN'T INCREASE RENDERING TIMES”

MERCEDES-BENZ 300SL (1955)

Software used: 3dsMax 2009 and Photoshop

INSPIRATION

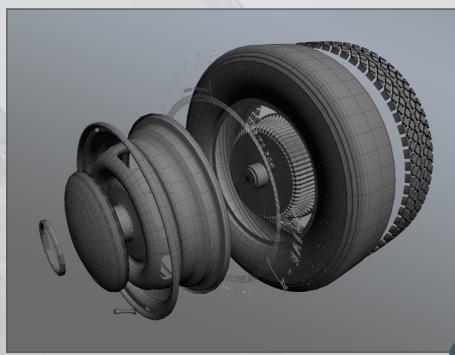
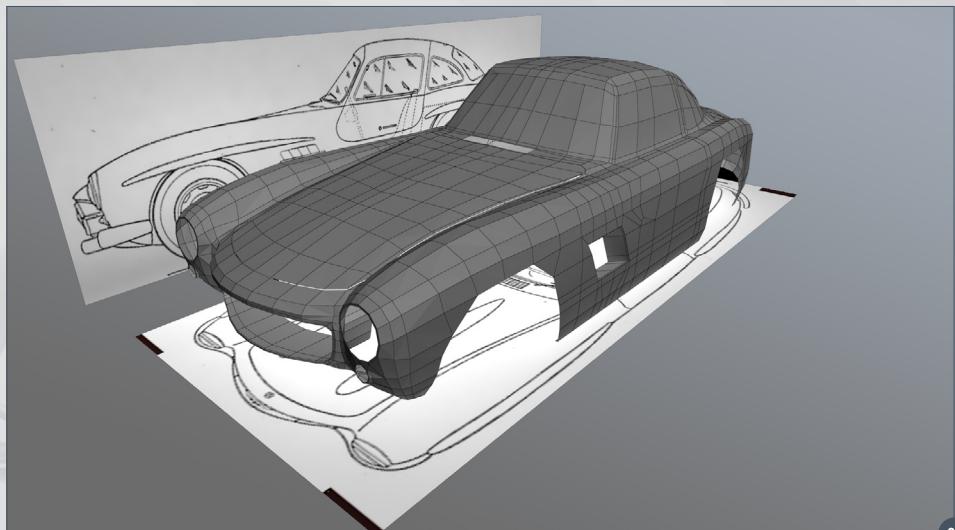
I was planning to model the 300SL's spiritual successor, the SLS AMG. During the research phase I came across the original and I made a quick decision. The 300SL's design, visual properties and shape itself made quite an impression on me. Once I had taken a second look at the car I recognized instantly that it must have been a courageous and unique concept for its time. The one last detail to be decided was the model year and I chose 1955.

HISTORY

The Mercedes-Benz 300SL is a two-seated, closed sports car, built by Daimler-Benz from 1952 until 1963. It was one of the first cars to use the distinctive gull-wing doors. It was introduced in 1954 at the New York Auto Show and there were only 1,400 coupe versions released by 1957. Its top speed was phenomenal for the time at 225 km/h, with later models reaching 249km/h.

MODELING – BEAUTY IN THE DETAIL

The first thing to do was to gather enough background info and references. This is the only way to understand all of the detail on the vehicle. That is where the beauty of this car lies.



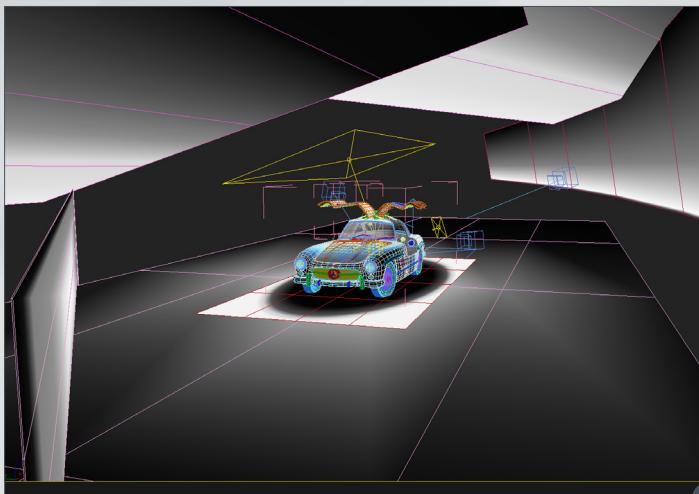
At the time I started modeling this car, Bratislava Auto Show took place, enabling me to shoot some photos for my work. I then had everything that I needed for correcting the blueprints that I already had, which were of varying qualities.

Poly modeling was used to model the base of the image (Fig.01). Even the basic body shape needed correction during this phase because of the conflicting blueprints used at the beginning.

This meant that the model required ongoing modifications which were possible because of the photographs I had taken.

The mesh was then divided into several entities (body, door, glass, interior, little details) so my work became a little more organized and the desktop was not as cluttered as it had been before (Fig.02 – 05).





06

One thing to keep in mind is to not use an excessive amount of polygons. This will take its toll later when you are trying to correct some of the details. To smooth the surface of the model I used the TurboSmooth option, along with the Isoline Display function. After that, it was a matter of Cut, Extrude, Weld, Chamfer and so on.

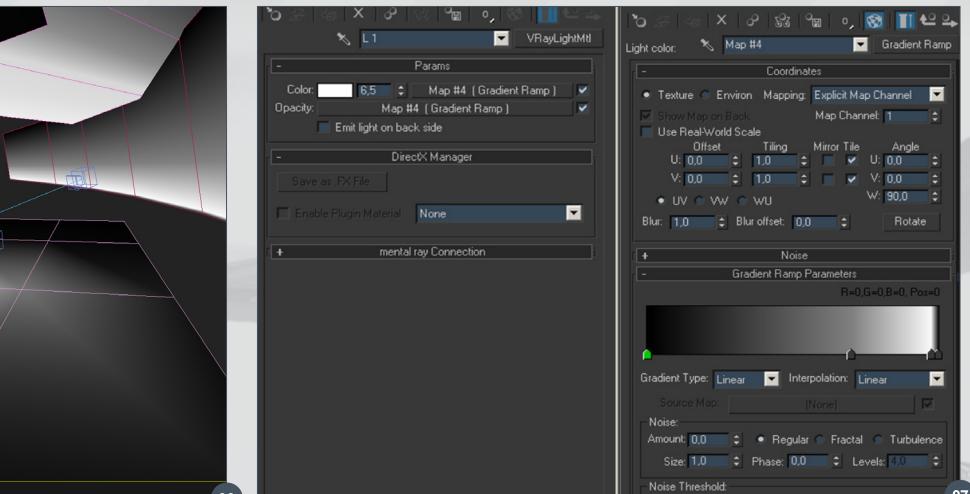
Don't forget that the more details the merrier. After finishing the model and making sure that no mesh corrections are necessary, I was able to move to the next phase. Clay renders have proven to be effective in spotting mesh errors between the phases.

TEXTURING AND MATERIALS

Texturing the car was a fairly easy affair. For the most part I used the Unwrap and UVmap function of 3ds Max. No third party software was necessary. As far as materials go, I used the standard V-Ray material. The quality of the materials and textures proved to be adequate for my purposes. I avoided using complex materials in areas where it didn't matter so that I didn't increase rendering times – the foot pedals are a good example of this. You can see the dashboard materials in some of the final images.

LIGHTING

To light the scene I used V-Ray lights and V-Ray light materials. It is very beneficial to learn the principles of photo studio car lighting.



07

There is a main V-Ray light above the car which sufficiently lights the whole car, as seen in **Fig.06**. I tried to use photometric lighting to enhance the interior, but the result was not satisfactory so I used V-Ray again.

The light planes placed around the car created a nice easy light transition on the body. It is possible to use the gradient V-Ray light, but planes provided better results in this case. For them I used V-Ray LightMtl with a Gradient Ramp map, correcting the transitions as needed (**Fig.07**).

The placement of light planes depends on the body shape, camera placement, animation usage...there is no universal advice available, which leaves room for experimenting. And sometimes, when the results are unsatisfactory,

it is better to remove all the lighting from the scene and start from scratch. Lesson learnt.

POST-PRODUCTION

The model was then finished as were the texturing, lighting and rendering. It may seem as if everything should have been finished by this point, but the truth is the image was far from completed. It is imperative to remedy any rendering glitches in the post-production phase. **Fig.08** is the original picture without any corrections. The need for lighting and interior corrections is fairly obvious, as is the need for coloring adjustments.

The progress can be seen in **Fig.09 – 11**. I hope you learnt something new from this Making Of and that it gave you an insight into the creation of my image of the Mercedes-Benz 300 SL.



08



FORGÁČ MARTIN

For more from this artist visit:

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3DC next month

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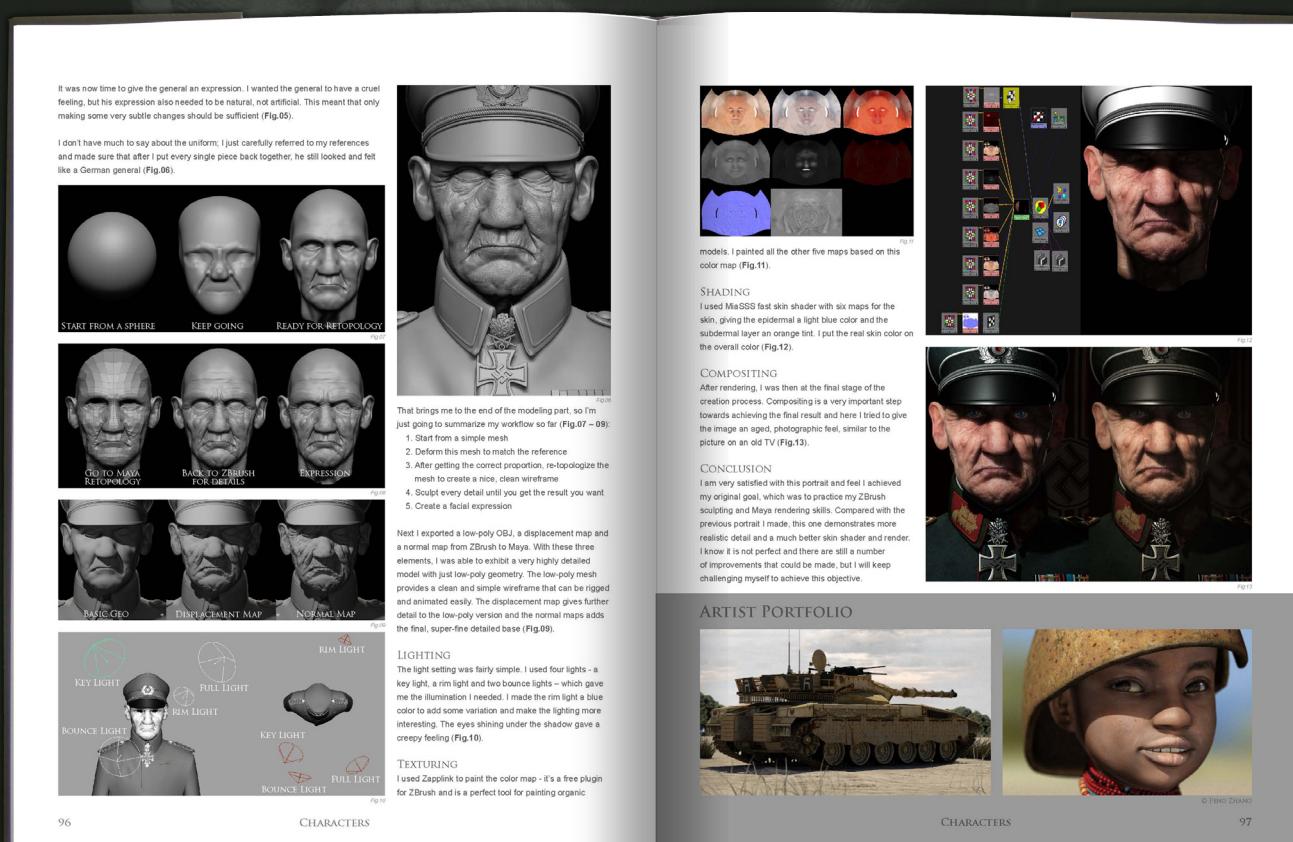
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This month we feature:

"CROSS OF IRON"

BY ERIC ZHANG

The following shots of the “Cross of Iron” book pages are featured here in full-resolution and can be read by zooming in...





MODELING FEATURES OF THE HUMAN ANATOMY



Modeling the features of characters is something that has caused problems for many artists over the years. A good model can easily be spoiled by an incorrectly modeled feature, such as a hand or an ear. This eBook offers a step-by-step guide to help you make sure you never struggle with feature modeling again, presenting detailed chapters that have been written specifically for 3ds Max, Maya, Cinema 4D and modo.

CHAPTER 1 | APRIL ISSUE 068
Ears

CHAPTER 2 | MAY ISSUE 069
Eyes

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Hair

CHAPTER 4 | JULY ISSUE 071
Hands

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Feet

CHAPTER 6 | NEXT ISSUE
Skin

CHAPTER 5 - FEET

Software used: 3ds Max

INTRODUCTION

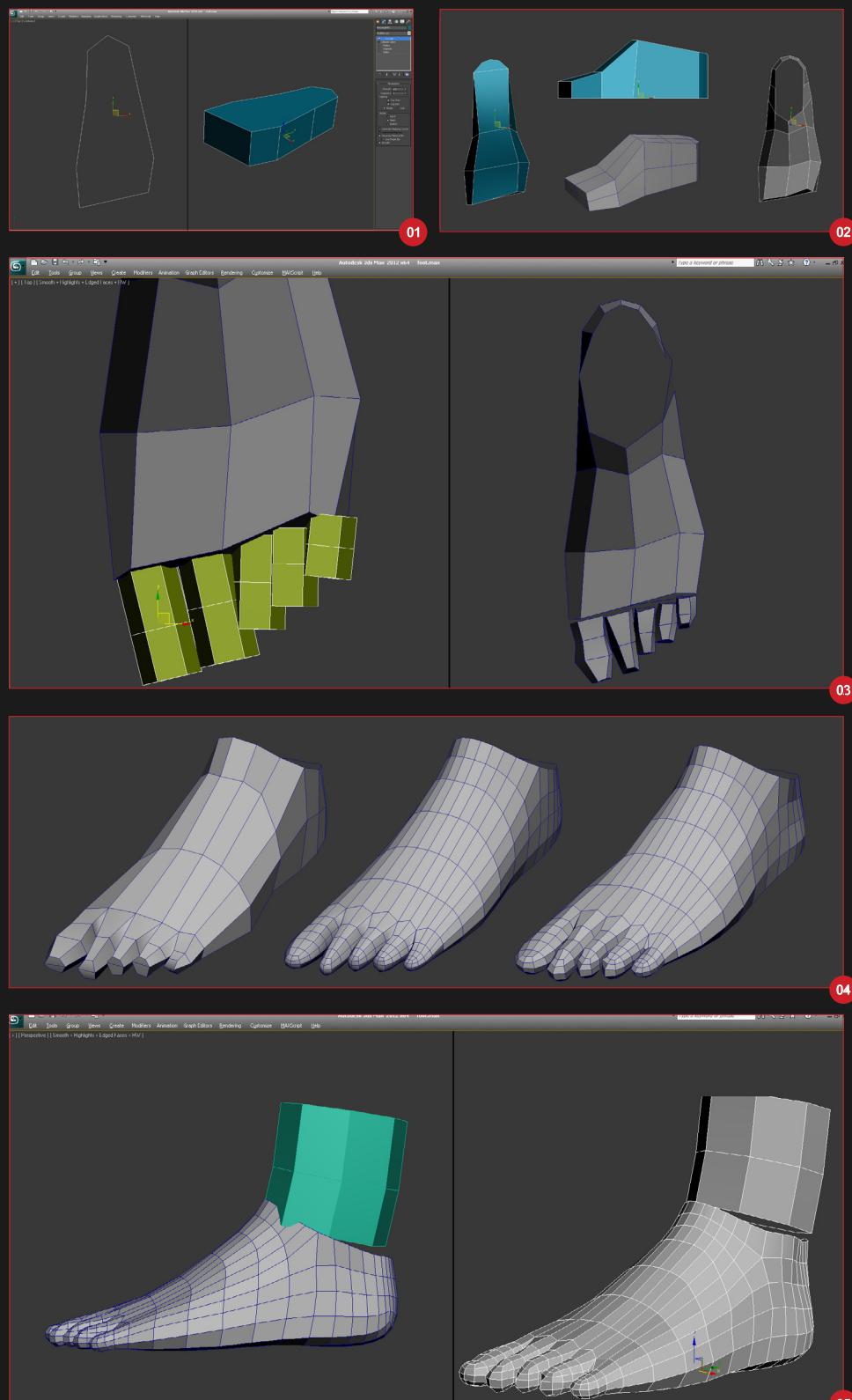
The feet can be an area that makes modelers feel uncomfortable, because usually they are hidden which means we don't usually model them. But really feet are the support of the whole body and are therefore really important anatomically. I've seen some perfect models with very weak feet in online galleries. I hope this tutorial satisfies your expectations and that next time you create feet you'll do it better!

We are going to start by drawing a simple Spline in the shape of a foot. You don't need to be totally accurate at this point because later we will remodel it and add some more polygons. When you have done this add an extrude modifier to the Spline, extrude it to about the same amount of depth as an average foot and collapse it into editable polygons (Fig.01).

From this point onwards you need to use a reference to make quick adjustments. To work faster use Freeform tools because this stage should be relatively quick and painless. Work whilst using as many views as possible to make sure everything is consistent. Add the central axis to the foot and make sure you have enough loops to ensure the foot has regular sized polygons. Keep repeating the process until your initial geometry looks like a foot (Fig.02).

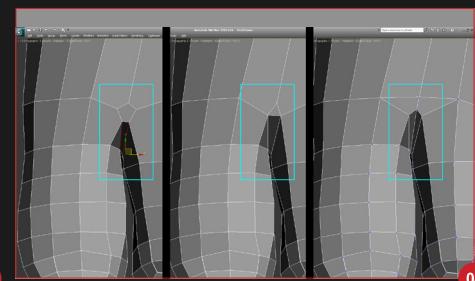
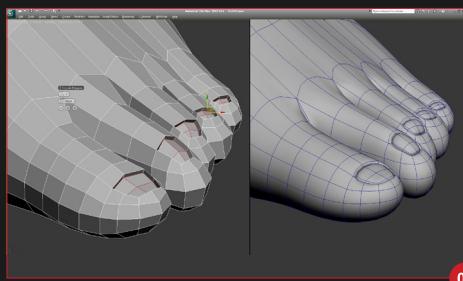
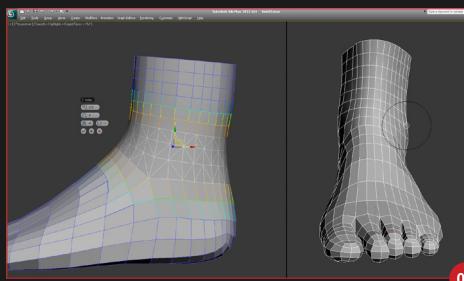
Now we can add the toes which are simple six-segment cylinders made from Splines. This should be sufficient for the first phase. We will do this in the same way as we did for the fingers and these six segments will later be further subdivided into 12 pieces. Once you have these toes then attach them to your foot and start to adjust them to match your reference image (Fig.03).

Now we should have one mesh that is in two pieces. Use the Bridge tool to connect these



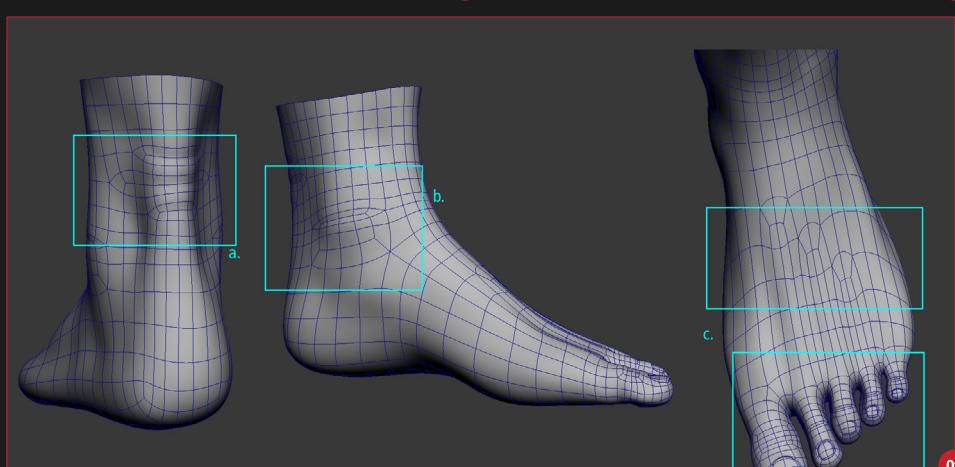
areas. Try to work cleanly because later we will add another level of subdivision and therefore we need a clean topology. With this new mesh continue to adjust the shape of the foot as we did in the previous steps. Adding a level of subdivision will allow us more control (Fig.04).

Now we can model the rest of the foot around the articulation zone. Create a Spline as you did before and create a low poly object that you can subdivide later. Convert it to an editable polygon and connect to your foot using the Bridge tool (Fig.05).



The result after using the Bridge tool was probably pretty dirty, but don't worry! You can use Soft Selection with Relax to smooth this area. Now you can use the Freeform modeling tools to improve your model. The first thing to consider is the position of the malleolus on the inner and outer ankle bones. Remember that the inner malleolus (attached to the tibia) is always higher than the malleolus attached to the fibular. This axis between the ankles will be critical in the execution of the foot. If you don't consider this position then your feet will be poorly executed from the start and will look strange, like alien feet (**Fig.06**).

You should have the general shape of the foot in place now so you can concentrate your effort on improving the smaller areas and adding some details. You can continue to develop the toes because so far they are pretty basic and dull. First we will add the nails. With an initial extrusion of four polygons downwards you will create the nail's insertion area. When you have done that proceed to add another extrusion to create the nail. Do not worry if this doesn't look perfect straight away; it will when we subdivide the foot (**Fig.07**).



You will also need to fix the separation shape between the toes because at the moment you will have an annoying pole there (a six vertex pole is pretty messy in an important joint area). This is the process that I used. First I selected the middle edge of the separation between the toes to apply a chamfer. Then I collapsed the remaining edges to regain the previous four vertex polygons. Finally I cleaned the area, adding more polygons to the central triangle. Repeat this for all the other toes (**Fig.08**).

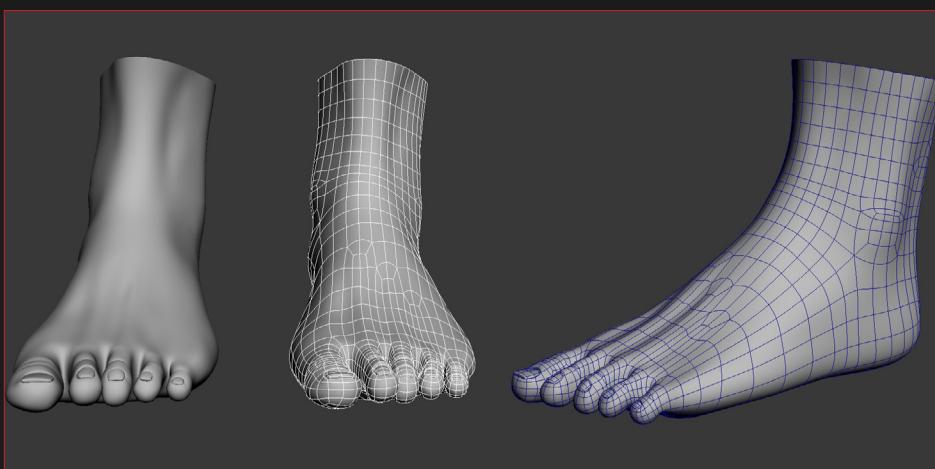
We have almost finished our foot, but we are still going to add the last details and the folds and wrinkles that are characteristic of human skin.

In **Fig.09a** you can see the area where you can add a few wrinkles where the achilles tendon ends. This isn't vital as this detail can be added in the textures, but by modeling them it will make our foot look more organic.

You can also add a few wrinkles to the area around the ankles as this will also add to the natural look of your model (**Fig.09b**).

To clean the forefoot area and avoid having any annoying five vertex polygons, add more edges. When you do this you can use it to your advantage as you can also model the tendons at this point (**Fig.09c**).

Once you have done all of that tidying up you will have a completed model. That's it for this month. I hope you liked it, see you next month! (**Fig.10**)



JOSE LAZARO

For more from this artist visit:

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ballobello@gmail.com

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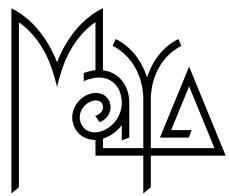
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Modeling the features of characters is something that has caused problems for many artists over the years. A good model can easily be spoiled by an incorrectly modeled feature, such as a hand or an ear. This eBook offers a step-by-step guide to help you make sure you never struggle with feature modeling again, presenting detailed chapters that have been written specifically for 3ds Max, Maya, Cinema 4D and modo.

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CHAPTER 5 - FEET

Software used: Maya

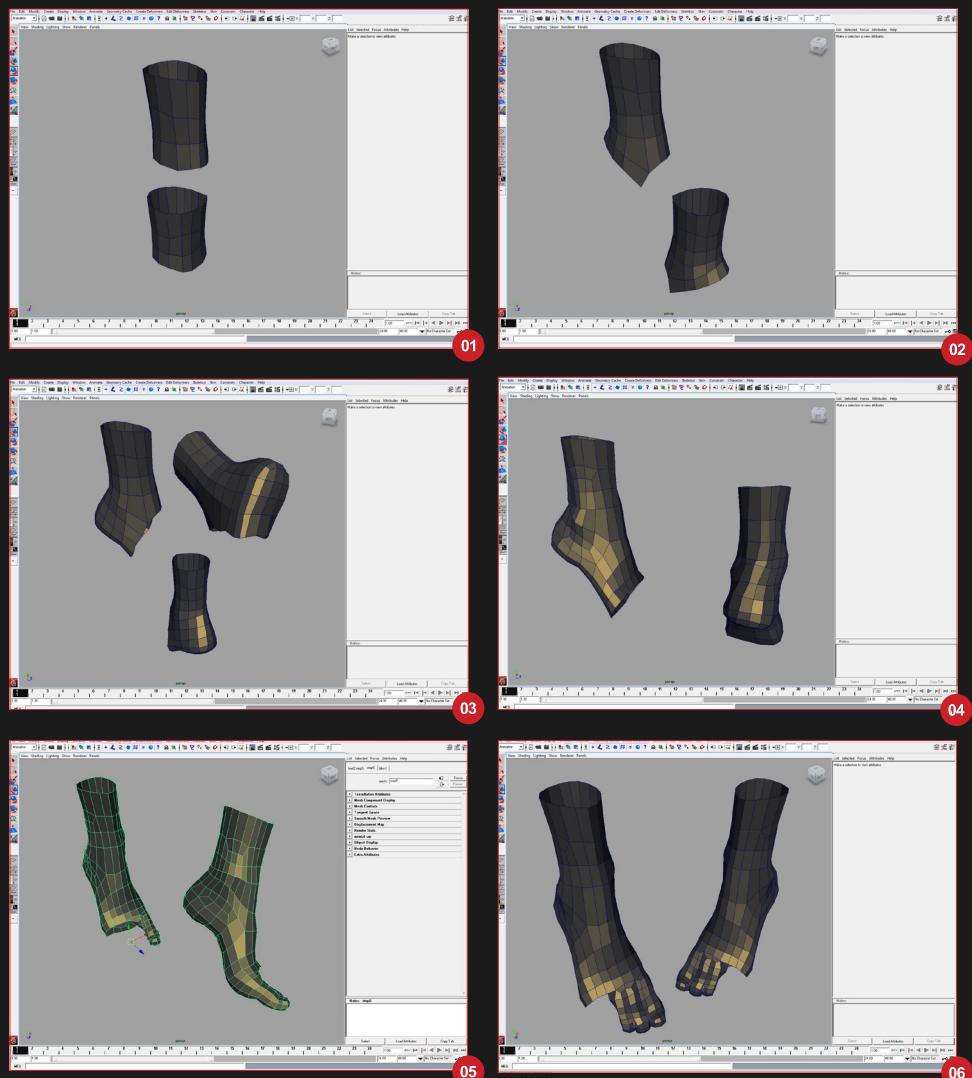
The feet can be an overlooked on many game characters because people assume that the viewers will not pay attention to that area.

Though this can be true as it certainly isn't a focal area like the face, it can be an opportunity to add an extra touch of personality to your character – what type of footwear your character has and even the anatomy of the foot (clawed feet, webbed toes, broad toes, protruding ankles, etc.) can tell a story.

The first step we'll take is to block out the part of the body that will lead into the ankle and, eventually, the foot (**Fig.01**). This doesn't have to be just a cylinder; adding a taper to where the calf muscle would fade into the ankle can add a nice touch to the character model profile. Usually at this stage in character work, you would already have a formed leg that would dictate how the foot would connect to the body, but for the purpose of this tutorial we will assume it is a bare female leg, leading into an arched pose as if the character were wearing heels.

From here I use the edge extrusion method to begin fanning out the foot to where the heel, ankle and top of the foot will begin to take shape (**Fig.02**). At this stage I'm not getting into too much detail – I just want to rough out the basic area. I generally work on the right side first and simply mirror the model over to create the left and add asymmetrical details if needed.

Next, I move onto the heel. Again, this will be an arched foot, so the edge flow will be slightly angled in that direction. I try to have multiple edges defining where the bottom of the foot will be, which helps for sculpting and deformations (**Fig.03**). I also try to terminate edges as a four-sided polygon on either corner of the ball of the foot. Avoid simply extruding edges straight down to define the back of the foot; this can lead to a



tree trunk-type appearance and, generally, isn't appealing or interesting. The heel usually fans out slightly from the ankle.

Here is where the foot really begins to take form (**Fig.04**). I build out the top of the foot by extruding edges outwards. I then create a ring from these polygons that will define the base of the foot, the metatarsals and where the toes connect. I connect the edges of this section and the base of the foot to create the arch. I also create extra edges for the ankle at this stage and begin forming the bone protrusions there. Generally, the ankle isn't aligned – meaning that the outer ankle is usually lower than the inner ankle.

Now we will begin to build out the toes (**Fig.05**). You can go two ways with this, which I will

show you. The first method is to just create a clump of toes that roughly have the silhouette of each individual toe. This is helpful in situations where you do not need every toe to move independently or spread apart. In a game model situation, it also saves on your triangle budgets and more often than not won't have the bones to support it (toes are usually controlled by a single "toe" bone.) I start by extruding the inner corner of the foot to form the big toe which will help dictate the angle of the foot, the length and size of the other toes and define knuckle protrusions.

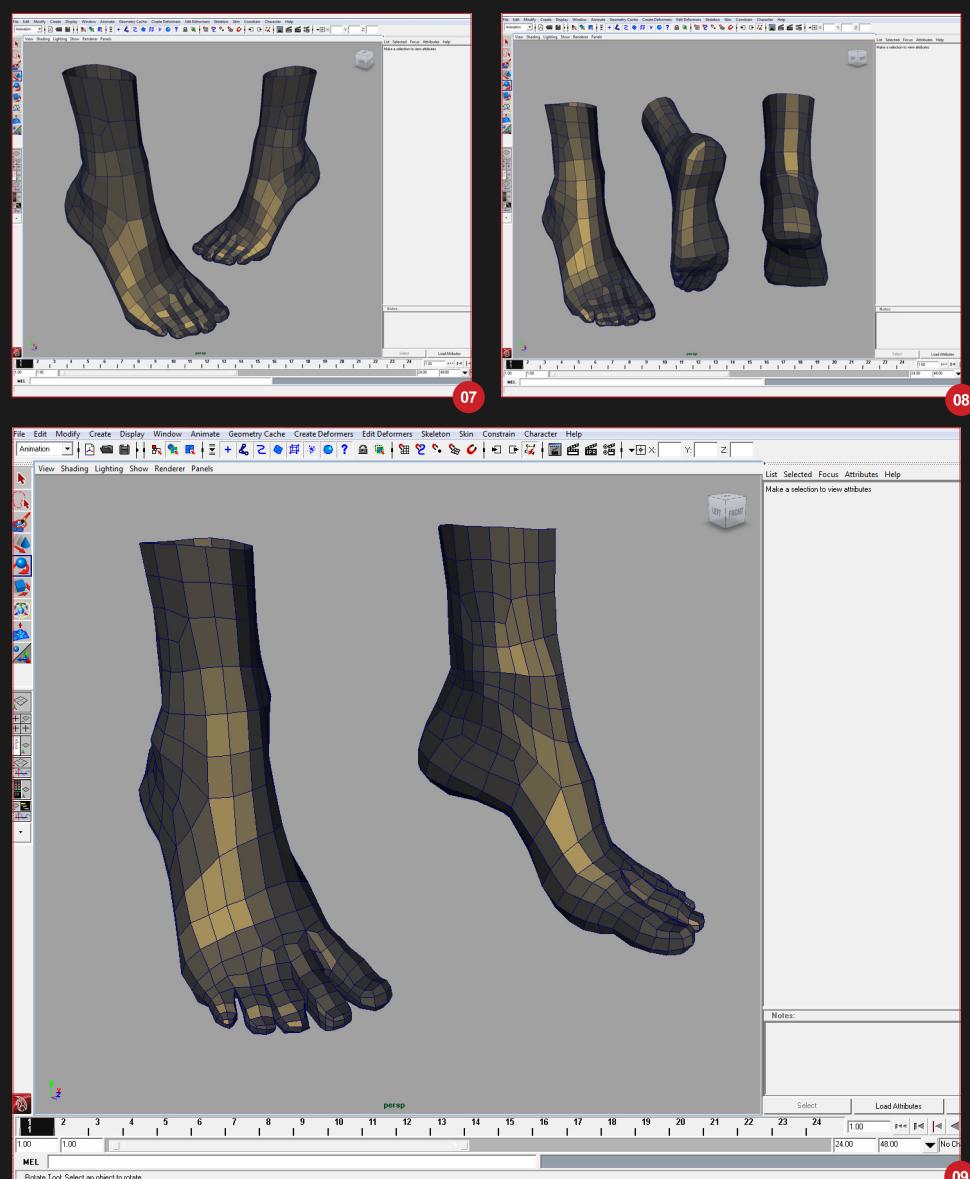
From here I begin defining the other toes, degrading in size until the pinky toe (**Fig.06**). I'm keeping all of the toes connected but still extruding the tips of the toes to give an illusion of depth. I try to keep support edges running on top of the toe as well as through the mid section

to help retain shape when subdividing the mesh. Feel free to add definition to the knuckles to show how the toes would curl in this type of pose.

I continue this process by creating the last two toes (Fig.07). The tips of the toes become less apparent here as the toes will curl into the foot more rather than being spread out for balance like the bigger ones. I also define the balls of the feet at this stage, adding fatty mass to where the toes join the foot. This padding can really help define the shape of the toes and helps build a base for this particular character's foot to rest on – rather than just having her stand straight on her toes.

This is the completed foot using the “paddle” foot method (Fig.08). I’m not overly concerned about topology for deformation, but rather want an evenly distributed mesh for sculpting. Now that everything is in place, I refine the shape of the foot more, pushing in the inner foot to define the arch more, squeezing the toes together for a more feminine and less broad appearance. I also add edge loops where polygons may have become too long and distorted, which will lead to an uneven mesh when subdividing and sculpting.

The second method would be to create separate toes that could move independently (Fig.09). I start the process much in the same way as before. Just instead of connecting all of the toes, you create the sides of each toe by connecting the top and bottom surfaces. Using this method



I tend to fan out each toe as it will be easier to sculpt or rig for deformations. I also add some webbing in between the first and second toe as there is usually larger spacing in between these toes. I keep the same general edge flow for both methods, including defining the knuckles and the curl of the toes. This means you handle each toe individually, which can be useful for in-depth sculpts that will have the toes posed or splayed for characters that have the budget for this sort of detail.

Of course, you can always add footwear to your character instead of just having bare feet. Even though things like shoes and boots are completely different from human feet, they do still follow the same principles. Adding edges

that define bigger shapes like the ankles, foot arch and where the toes meet the ball of the foot can be helpful during animations, and hints at the anatomy lying underneath the clothing.

After modeling the foot it can be used as a guide for creating footwear, which not only makes the process go by more quickly, but can also be used as an anatomical guide for where details such as laces and piping should go (Fig.10).

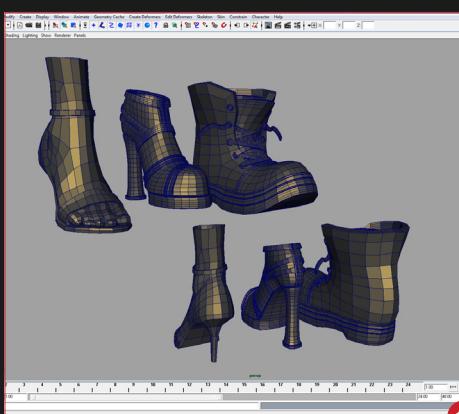
GAVIN GOULDEN

For more from this artist visit:

<http://www.gavimage.com/>

Or contact them at:

gavin@gavimage.com



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MODELING FEATURES OF THE HUMAN ANATOMY



Modeling the features of characters is something that has caused problems for many artists over the years. A good model can easily be spoiled by an incorrectly modeled feature, such as a hand or an ear. This eBook offers a step-by-step guide to help you make sure you never struggle with feature modeling again, presenting detailed chapters that have been written specifically for 3ds Max, Maya, Cinema 4D and modo.

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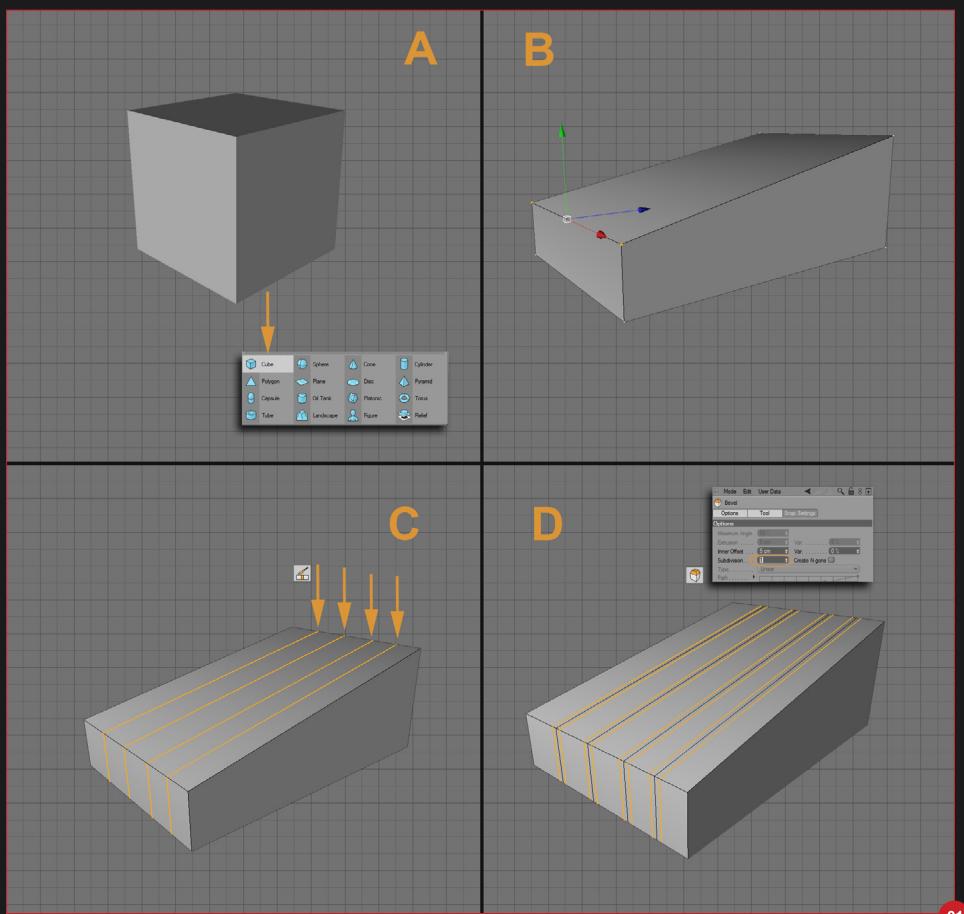
CHAPTER 5 - FEET

Software used: Cinema 4D

To model a foot you should follow a few simple steps. First create a cube (Fig.01a), make it editable and switch the points to give the cube a trapezoidal shape (Fig.01b). With the Knife tool in Loop mode, make four cuts to the mesh so you get five subdivisions that you can edit to create toes (Fig.01c). Select the newly created Edge Loop and, with the Bevel Selection tool in subdivision 1, click on the mesh and hold the left mouse button to split the edge (Fig.01d).

Select the five polygons at the end of the toes and extrude them with the Extrude Selected tool (Fig.02a). Select the Knife tool in Loop mode and split the mesh to divide it into four polygons that make up the toes (Fig.02b). Before you can proceed it will be necessary to clean the mesh by selecting the Stitch or Sew the Element tool and sewing the points near the back of the foot, deleting the unwanted gap (Fig.02c).

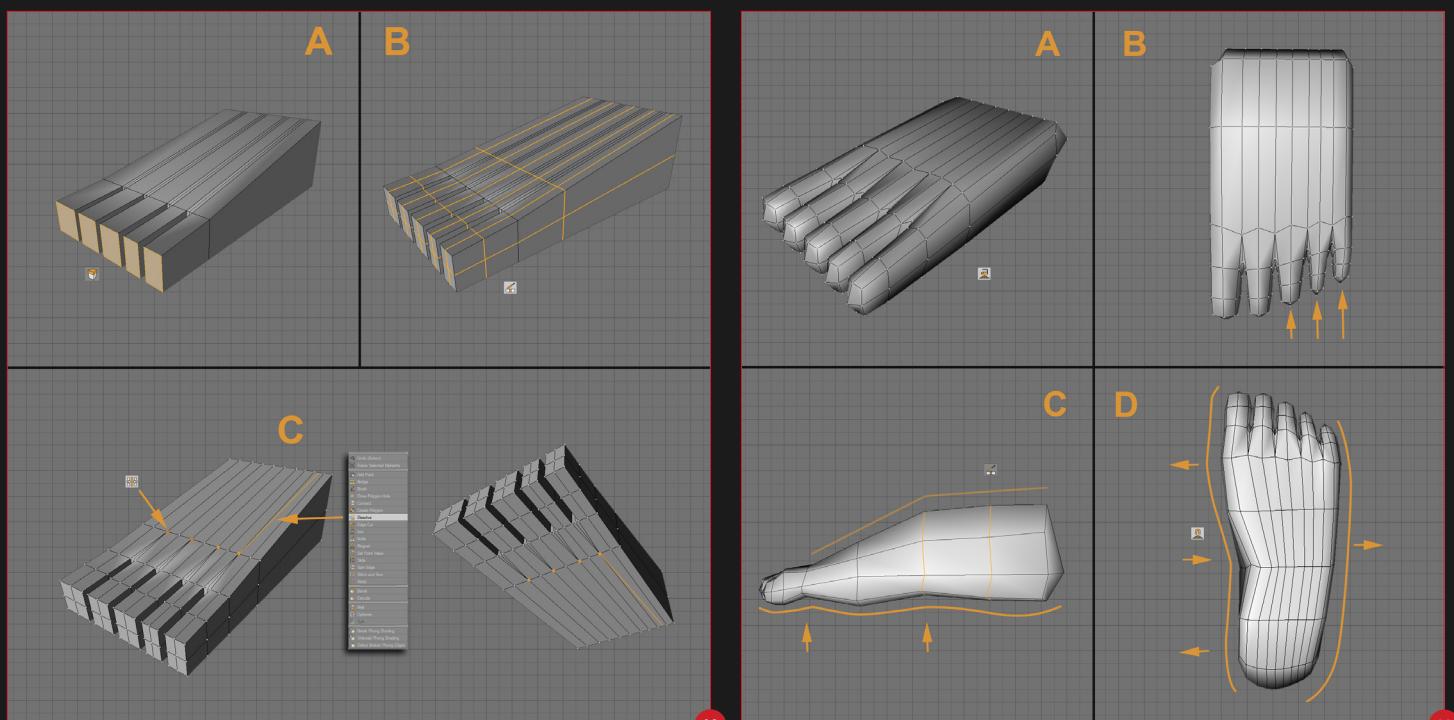
Select the Irons Mesh tool, hold down the left mouse button and relax the mesh to make it softer (Fig.03a). Go to the Top view and move your toes along the Z axis to give it the correct



01

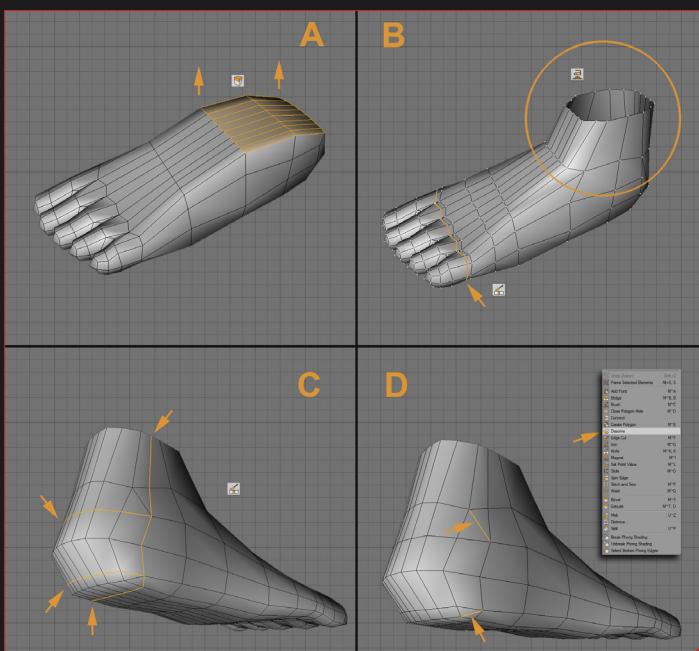
arc. You can also get the desired result using deformers such as the Magnet tool (Fig.03b). Switch to the view from the right and use the same method as before, to make the foot anatomically correct. Add two cuts with the Knife

tool in Loop mode at the center of the foot and the heel (Fig.03c). Switch to the Bottom view and, with the Magnet tool, continue to adjust the shape of the foot until it is anatomically correct (Fig.03d).



02

03



04

Select the polygons by the ankle and extrude them with the Extrude Selected tool (Fig.04a). Delete the polygons that make up this section of the ankle. With the Knife tool, but in Line mode this time, make cuts in the heel (Fig.04c). Select the excess edges and delete them using the Dissolve tool (Fig.04d). This makes the mesh more regular and manageable.

It may be necessary to reduce the mesh for better manageability. This step is not mandatory and does not affect the final look of the foot. With the Stitch or Sew the Element tool selected sew two pairs of points located on the soles of the feet and with the Dissolve tool delete the excess edge (Fig.05a). With the Knife tool in Line mode, create a new cut to make two triangles (Fig.05b). With the Magnet tool adjust the area above the heel where the tendons are until they look anatomically correct (Fig.05c). With the Knife tool in Loop mode make additional cuts at the knuckles. This will enable the toes to move correctly (Fig.05d).

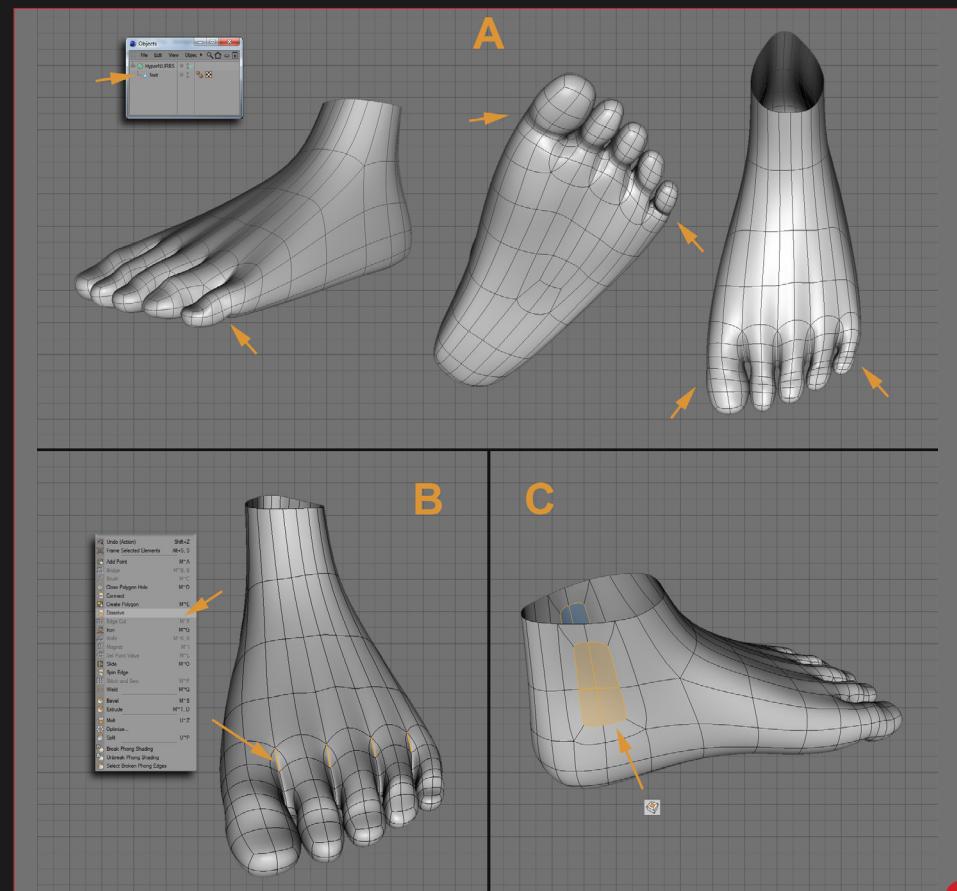
At this point you can make your object a HyperNURBS object and continue to work with the smooth mesh. Using the edges and the mesh points, adjust the shape of the foot. The only way to do this correctly is to use a good reference (Fig.06a).

To continue to adjust the shape, form polygons and divide them into two parts at the edge of the toes. Then delete the unwanted edge with the Dissolve tool (Fig.06b).

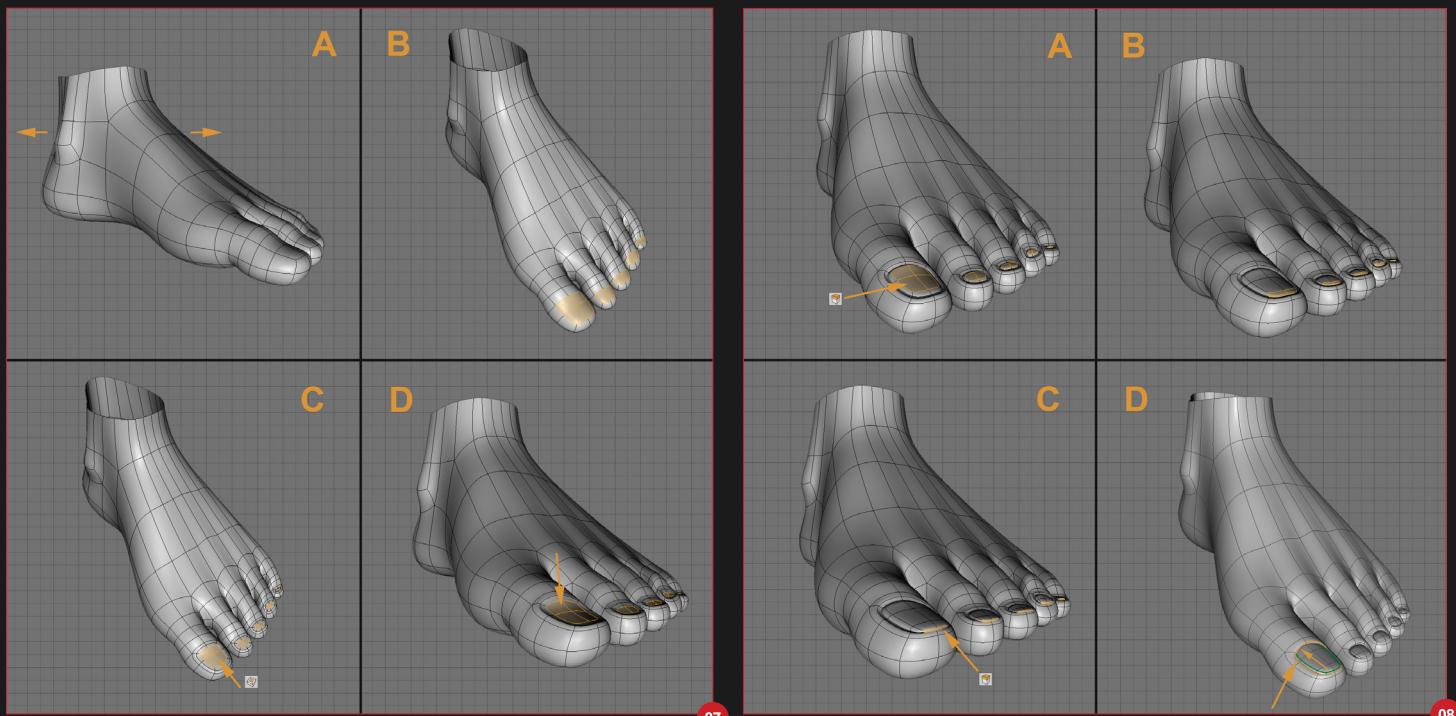
This is a good point to create the volume that there would be at the fibula (the bone protruding

on either side of the foot). Select four polygons on either side of the fibula and extrude them inwards with the Extrude Inner Selected tool (Fig.06c).

Select two polygons on either side of the fibula and push them out (Fig.07a). The next step



06



07

will cover the creation of the nails, which will be created in the original mesh. Select the polygons where the nails should be (Fig.07b) and, with the Extrude Inner Selected tool, perform two extrusions (Fig.07c). Select the central polygons and push them along the Y axis (Fig.07d).

Using the central polygons, extrude them with the Extrude Selected tool along the Y axis

(Fig.08a). Select the polygons on the external profile of the nail and extrude them (Fig.08b – c). Make sure your nails are well integrated with your toes by making them look like they curve round into the toes at the edges (Fig.08d).

When you are at this point it is simply a case of looking at your references and making sure the shape of the foot is good. It is easier to make the small adjustments using the Magnet tool

(Fig.09a – 9d). For greater detail and realism you can further subdivide the mesh and work on it or you could move it into a sculpting program. You can see my final foot in (Fig.10).

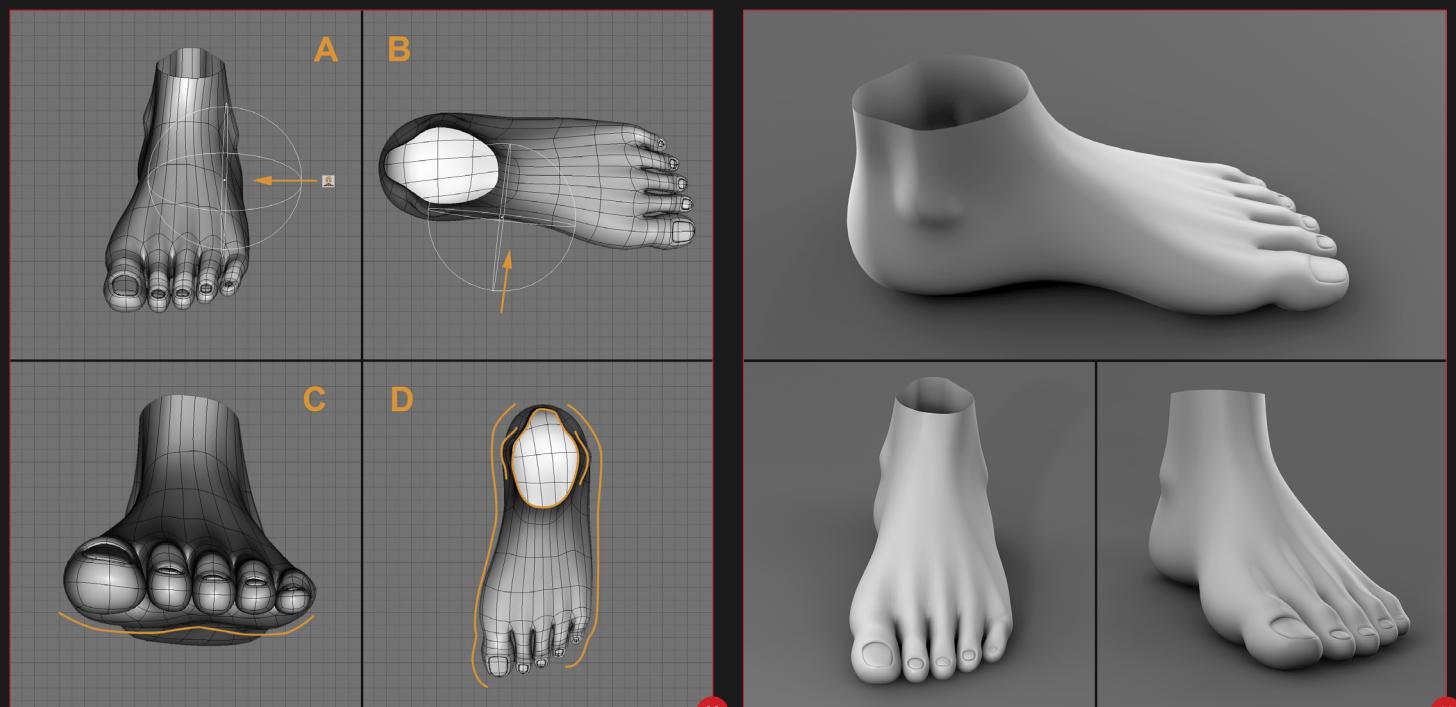
LINO MASCIULLI

For more from this artist visit:

<http://www.linomasciulli.com>

Or contact them at:

cardinal_@hotmail.it



09



MODELING FEATURES OF THE HUMAN ANATOMY



Modeling the features of characters is something that has caused problems for many artists over the years. A good model can easily be spoiled by an incorrectly modeled feature, such as a hand or an ear. This eBook offers a step-by-step guide to help you make sure you never struggle with feature modeling again, presenting detailed chapters that have been written specifically for 3ds Max, Maya, Cinema 4D and modo.



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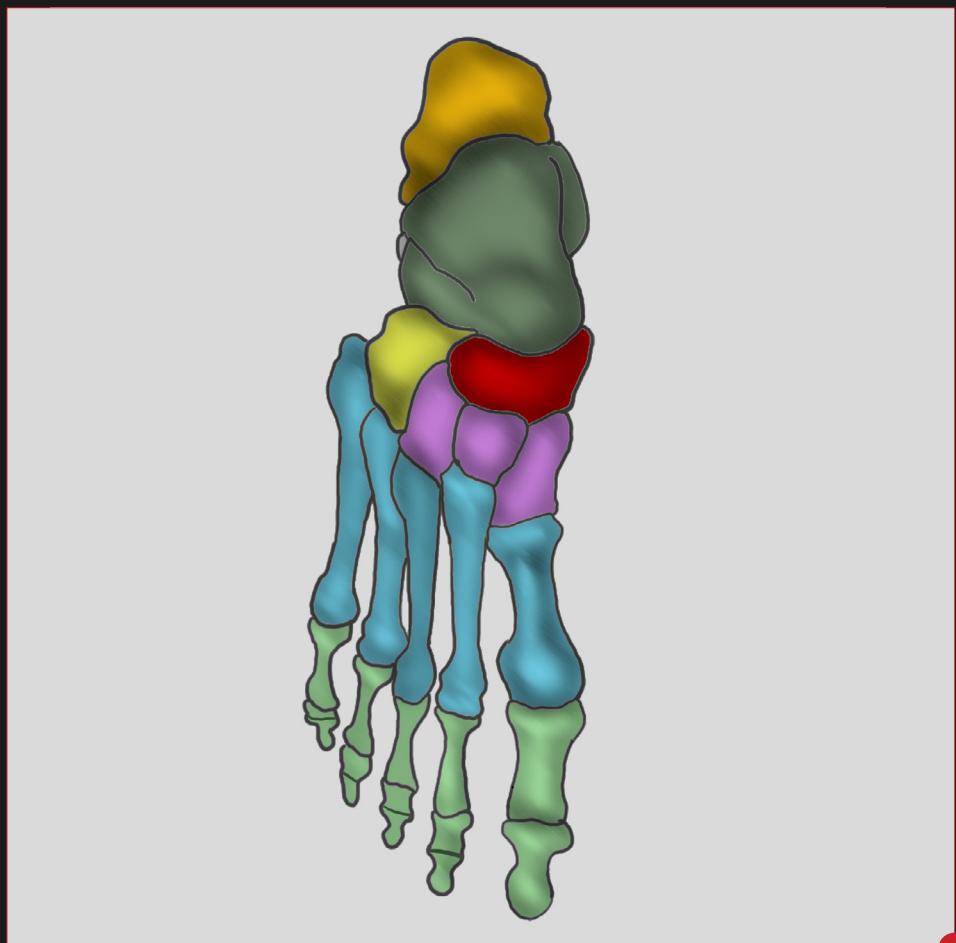
Software used: modo

Hi, here is the fourth chapter of this feature modeling series and in this chapter I will explain some basic modeling techniques and the easiest approach to modeling human feet. As already mentioned in the previous chapters anatomy is the key element for success in this type of modeling, so let's start by looking at the anatomy of a human foot.

The human foot contains 26 bones, 33 joints and more than 100 muscles, tendons and ligaments. Tendons and bones are the most visible building blocks of human feet. We all know that every foot has five toes, but the structure that makes them is made from 14 different but similar bones called phalanges – marked green in **Fig.01**. If you look at the phalanges you will see that four of the toes contain three of them and the big toe is made up of only two.

All five toes are connected to five bones called metatarsals (light blue). The biggest of them is the one connected to the big toe. The cuneiform are next to metatarsals and there are three of them (pink). The navicular (red), cuboid (yellow) and talus (dark green) are the next three bones. The last one is the calcaneus, which is the heel bone.

All of these bones are connected with tendons and muscles. I won't name them since most of them are not really visible when you are modeling the feet. The important ones are



01

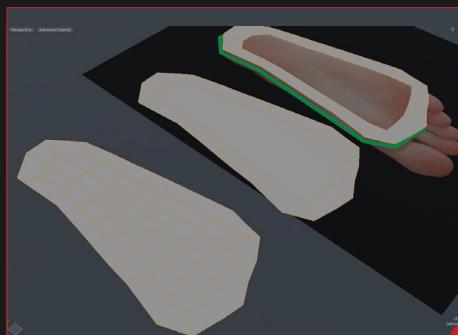
the extensor hallucis brevis tendon that is connected to the big toe. The extensor digitorum brevis are tendons that connect the four toes and tendo calcaneus, which is the one that is connected to the heel. Let's not forget the end of the tibia and fibula, which are the bones that come down from the leg to the feet. Learning the names can significantly help when learning the relationship between the different parts.

Now let's move on to the modeling part. The goal of this tutorial is to provide you with the easiest way to make feet and help you with the process of planning how to do this. As we already know the big toe is very different from the other four toes, which are very similar in shape but different in size. So for most of the toes we can use the same toe and just resize it. You can use your own feet as a reference or use the references I include with this tutorial. Remember that references are one of the most important things and if followed carefully they

will help you establish the relationship between the different forms and therefore establish good proportions.

modo quick tip: You can completely personalize the color of your viewport from the Preferences menu or you can choose from a large list of presets like Maya or Max. Those presets are located in the View menu > Viewport Color Scheme.

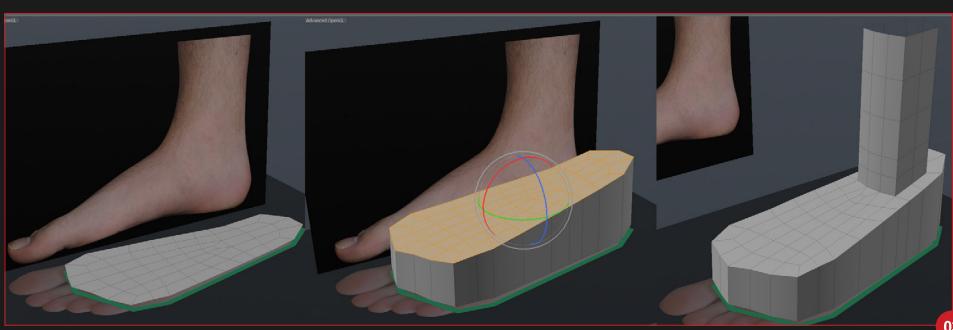
Let's start by creating a new backdrop item with the shape of the outline of the foot. You can do this by making a new backdrop item or by dropping the image directly into the modo viewport. Since we are going to be working with the bottom of the foot to start with, set the Projection type to Bottom also. Now create a new mesh item and use the Pen tool with Merge and the Make Quads options turned on. With the Pen tool trace the reference image as illustrated in **Fig.02**. Fill in the middle section



02

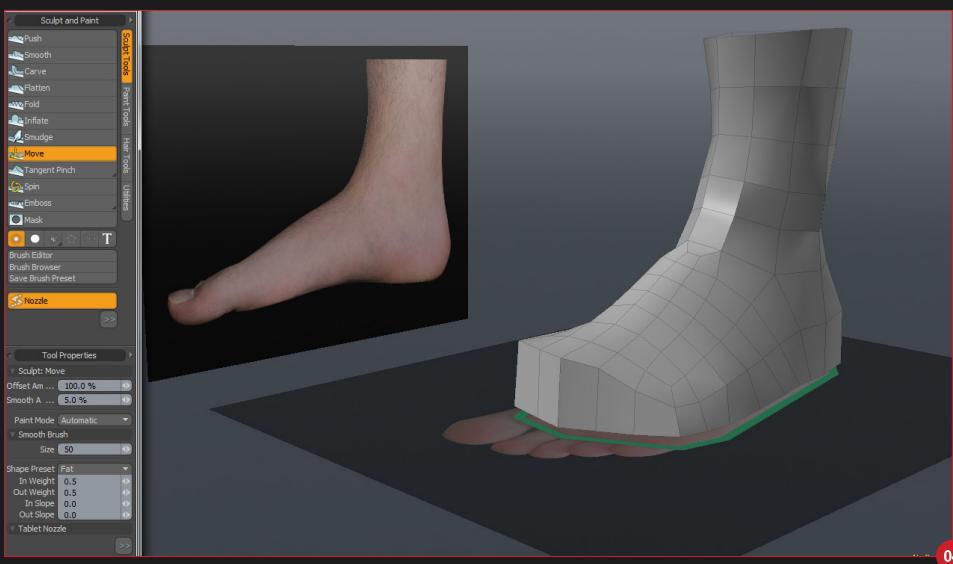
by selecting the inner border and pressing "P" on the keyboard. Next, use Slice tool to turn the newly created area into quads.

Load another backdrop item at this point to show the side of the foot and rescale and move it to roughly fit the bottom reference image. Now select all the polygons and add thickness to model. Then, with the upper part of the model selected, rotate the polygons slightly to show how the foot slopes down to the toes. The next step is to select the inner three rows of polygons near to the heel and extrude them upwards a few times to block out the shape of the leg. Now when you have the basic shape of the foot without the toes it's a good time to reshape it into something more organic looking. These steps are illustrated in **Fig.03**.



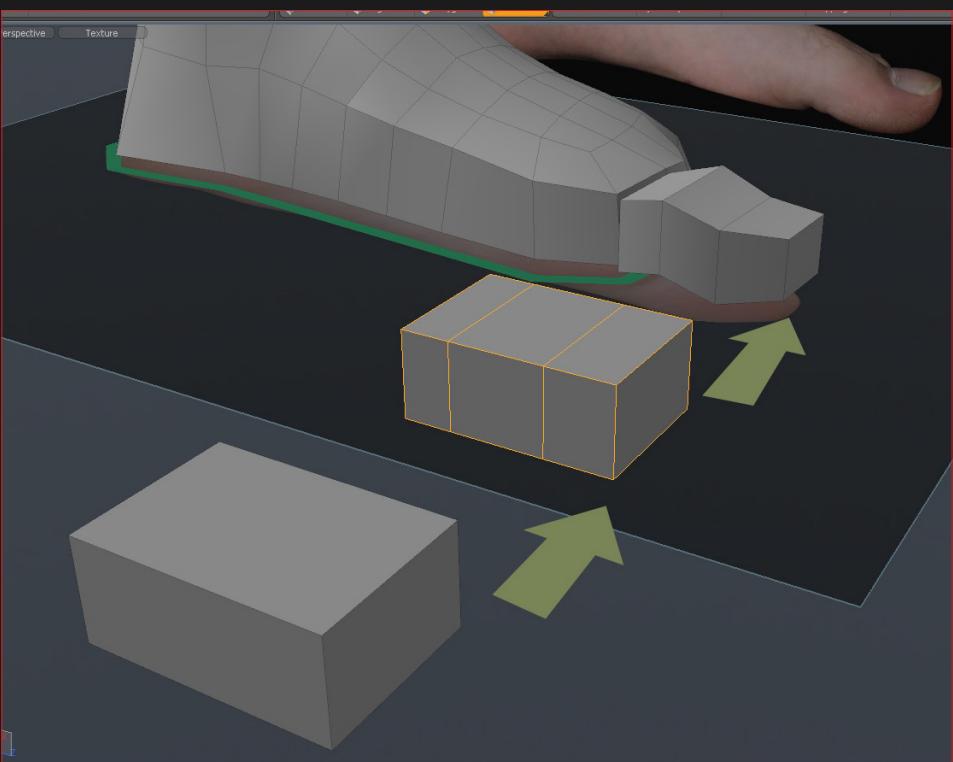
03

Here is the part that can't be explained step-by-step as everything is about artistic decision making. However, the aim is to follow the reference until the geometry fits the image. I advise you to use the Smooth brush at a low intensity to start with and change between this and the Move brush to detail the model. **Fig.04** shows what I came up with after a few minutes.



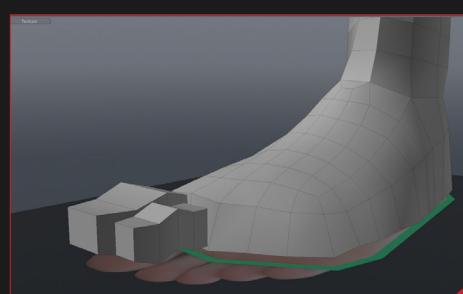
04

Now we have a good base in place for the foot and it's time to start on the toes. The general idea is to make a unique model for the big toe and one model for the remaining four toes. Since there is no longer a need at this point to see the geometry you just made you can hide it by clicking the eye icon in the Items list.



05

So let's start with the big toe and once again make a new item which is a default size cube. Resize the cube to make it roughly fit the

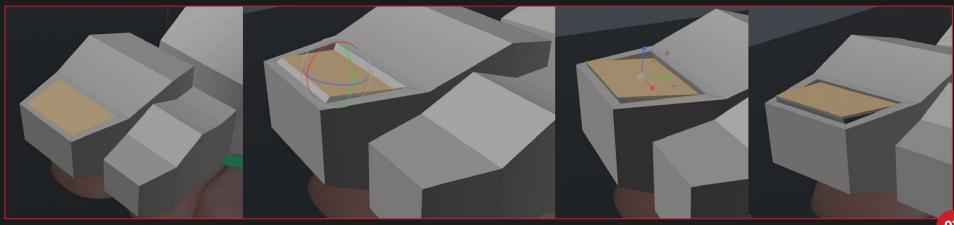


06

volume of the big toe on the reference image. Now insert two vertical edge loops to divide the box into the three parts, one for the first joint, one for the second and the last section

will be for the nail area. These steps are clearly illustrated in **Fig.05**. Repeat the same process for the next toe, but this time add one more segment at the root of the toe (**Fig.06**).

Now let's create a nail for the big toe by selecting the top polygon on the last segment and inserting a polygon using the Bevel tool. Insert it once again and rotate the new polygon on its X axis in local space. Also scale the same polygon on the Y axis, also in local space. For the final step extrude the same polygon slightly upwards to add some thickness to the nail (Fig.07).



07

Apply the same process to create a nail for the second toe. Before you start detailing go back to the foot geometry and make room for the toes. Select the polygons reserved for the four toes and insert the polygons using the Bevel tool. Make sure that the Group Poly option is unchecked in the Bevel tool properties. Once you have inserted the new polys you can then delete the unwanted ones. Repeat the same process for the big toe, but this time grab two polygons and check the Group Polygons option (Fig.08).



08

them to the corresponding edges on the foot geometry. Now it's time to round things up so add one loop in the X and Z axis for each toe, and to the corresponding loops on the foot geometry previously created. Placement of the newly created loops is illustrated in Fig.08.

The next step is to round off the shape of the toes. The Move brush in the sculpting palette is the best choice for this task. Once you have done the reshaping, copy the second toe to the other three empty places. Use the reference to help you do this.

Another visually important part of the feet is the end of the tibia on the inside, and the fibula on the outside of the joint. Note that the end of the tibia is located a bit higher than the same part of the fibula. Again check out some reference images for clear guidance or use your own foot.

Fig.09 illustrates the newly added edges that form the shape of the fibula.

This basic shape is too boxy and hard-edged to look natural or ever realistic, so we need to add some more resolution to the mesh and reshape it again. To add to the resolution select the mesh and press "D" on the keyboard to activate SDS Subdivide. You can see the result of this in Fig.09.

I hope that you enjoyed this tutorial and see you in the next chapter!

ANTO JURICIC

For more from this artist visit:

<http://anto-toni.cgsociety.org/gallery/>

Or contact them at:

monty.band@gmail.com



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<http://www.3dtotal.com>

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<http://www.2dartistmag.com>

Editor & Content Manager > Simon Morse

simon@3dtotal.com

Lead Designer > Chris Perrins

chrisp@3dtotal.com

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